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THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

Severance Damages
FRANK E. KRUESI and EDWIN VENNARD

A Permanent Housing Program
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Why No Permanent Low-Rent Housing Program in the United States?

By JULIUS FLEISCHMANN*

EUROPEAN, especially English experience has shown, that the way out of depression is dependent to a large extent on a huge building program. Since the building industry is a key industry in the economic life of every country, housing is one of the best ways to create employment. Building contracts may be awarded in the usual way with free competition among contracting firms. Therefore, housing must be recognized as materially different from the usual type of governmental public works which everywhere prove more expensive than private enterprise. Already there is a shortage of up-to-date dwellings at low rentals, not only in large cities but also in smaller towns. Furthermore, hundreds of thousands of families are living in obsolete quarters ripe for demolition. Statisticians have assembled figures for the next years, showing a shortage of dwellings going into millions.

As these facts are generally known, it is hardly comprehensible that no permanent housing program, independent of all emergency measures, has as yet been developed. For several years various federal agencies have been active in housing; very expensive experiments have been made; but no general recognized plan has been worked out so far. With good reason President Roosevelt asserted some time ago that no housing program can be enacted as long as the experts are of so diverse opinions.

What is the conception of a housing program? It does not mean a number of one-family houses built for commercial sale or apartment houses rented on a profit basis. It means units of hundreds, even thousands, of dwellings taking the form of row or apartment houses, built in one community after one plan, owned by the same body, and rented on a non-profit basis. Only a few of these large-scale housing units are in existence in the United States in contrast to England, Germany, and other European countries.

Government Aid Necessary

Low-rent housing cannot be accomplished without governmental financial

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support. This support is necessary in two directions. The rent not only depends on total cost (land cost and construction cost) but also on the interest rate of the mortgage. In order to provide lower interest rates than those prevailing in the private market, the government has to provide the mortgage loans. Still that is not sufficient. It is comparatively easy to obtain 60% of the total cost of a building as a first mortgage. But even private builders seldom possess an equity as great as 40%. Prospective owners of large housing units cannot contribute an equity of much more than 10% of total cost. To furnish the missing 30%, especially at the same low interest rates as the above 60%, should be the second part of governmental financial support. The Federal Government through a special agency would have to lend for low-rent housing one mortgage of approximately 90% of total cost.

These loans ought to be given only on a self-liquidating basis. The housing bodies should pay as interest and amortization returns on these loans at least the same amounts (and an additional amount for administrative fees and possible losses) as the Government requires for interest and amortization of its bonds. The housing bodies can pay these returns while being operated in the same manner as privately owned housing. In this scheme no subsidy is to be paid out of budget receipts. The Federal Government and the taxpayers would not be burdened with expenditures caused by low-rent housing. Every one who does not oppose governmental participation in housing on principle must admit that such governmental support is financially sound and can be extended on a large scale for an unlimited number of years. Yet strong opposition is coming from real estate owners who fear that low-rent housing projects will draw away their tenants. This may be true to a certain extent, but would it not even be desirable to have up-to-date housing available at the same rentals paid for old fashioned tenements in slum areas? There would be no serious competition to privately owned apartment houses of later date with modern improvements, if only those applicants for low-rent housing developments are selected who cannot afford the much higher commercial rent.

Experience with Limited Dividend Corporations

The Federal Government took an excellent first step toward financing low-rent housing on a self-liquidating basis. It granted loans of nearly 90% of total cost to a few limited-dividend housing corporations, but the result was apparently very discouraging. These corporations had to charge rents of $11 per room per month and more to cover all their expenses. Such a rent cannot be met by families of low income.

What is the reason for these rentals? Some figures are necessary to clear the errors and confusion of the actual federal housing policy. One of the seven limited-dividend housing corporations which received a loan from the Housing Division of the P.W.A. was the Hillside Housing Corporation in New York City (Borough of the Bronx). One thousand four hundred and sixteen apartments with 5,329 (renting) rooms have been erected on vacant land. The total cost amounted to $5,717,871; cost of the land was $468,481, or 8.2% of total cost, a normal proportion. The federal loan was $5,060,000 at an interest rate of 4%; 88.4% of total cost. The average rent of $11 per room per month has been calculated to yield the following income:

5,329 rooms x $11 x 12 months		$703,428
Less 5% vacancy allowance		35,171
Total Income		$668,257

The annual charges are estimated as follows:

4% interest on loan of $5,060,000	$202,400	
1.5% amortization of $5,060,000	75,900	$278,300
Property tax (estimated)		105,000
Operating expenses (including steam, hot water, maintenance, management) at $40 per (construction) room per year (4,948 x $40)		197,920
Federal income tax (estimated)		16,500
Insurance and miscellaneous		9,000
Dividends on stocks and surplus		61,537
Total Charges		$668,257

These figures may be used to show how a reduction of annual charges and therefore a reduction of rentals could be accomplished.

First, consider the interest charges of 4% on the loan. Federal bonds are issued with an interest rate of 3%, even less. A margin of 1% for administrative fees and possible losses seems too high; ½ of 1% may be sufficient. Interest charges ($202,400 in the above calculation) could thus be reduced to 3½% of $5,060,000, or $177,100, yielding a saving of $25,300 in the interest item.

As to amortization of the loan, the percentage to be applied depends on the rate of depreciation of the building. The amount of the loan ($5,060,000) does not differ much from the building cost ($5,249,390); therefore, depreciation and amortization can be completely or nearly identical. The lifetime of well constructed housing is supposed to be 50 years. After the expiration of this period the building must, of course, be written off and the loan paid. Amortization may be calculated in either of two ways. One is the payment of a fixed annuity each year until the mortgage matures. A mortgage at 3% interest (the additional ½ of 1% is for fees and loss reserves) and 1½% amortization, or 4½% annuity, will mature after 37 years; 47 years are required at 3% interest and 1% amortization, or 4% annuity.

Amortization of mortgages through a fixed annuity is suitable for home ownership, but not for rented housing. Here it is advantageous to diminish the principal permanently by annual amortization with the same amount. This leads at the same time to diminishing interest payments from year to year. The buildings become older, need more repairs, have more vacancies because of less attractive features. Savings in interest payments not necessary for other purposes could increase the reserves of the corporation. To pay off the $5,060,000 loan in 50 years, the annual amortization has to be 2% (or $101,200) instead of 1½% or $75,000 as given in the rent calculation.

To cover the increased amortization of $25,300, the savings in interest, which are the same amount, have to be applied. Interest and amortization as a total sum of $278,300 thus have to remain unchanged.

Second, consider the taxes. It does not make sense when the Federal Government with one hand gives a housing loan to reduce rents and with the other levies an income tax on the corporation. Every limited-dividend housing corporation should be exempt from federal and state corporation income and other taxes. The amount of $16,500 in the rent calculation, corresponding to $0.26 per room per month, could thus be omitted.

Another much bigger tax item in the rent calculation is the property tax which goes to the City of New York. The $105,000 property tax is higher than

a 2% interest rate on the loan of $5,060,000. If a city really wants modern housing at low rentals for its population, it must be satisfied with the land tax and drop the tax on buildings. This has been done in previous years to encourage private builders. Government housing is completely tax-exempt; why not the buildings of limited-dividend corporations? Even with a housing program continued over a period of years, the number of dwellings erected with government support would be only a small proportion of those now existing. As the city collects the land tax, the amount given up by tax-exemption of the buildings would not be a great loss to the city budget. The land tax for Hillside can only be estimated, because the assessed value of the land is unknown. In taking its book value of $468,481 at the full tax rate of .027, the land tax would amount to $12,650. If, instead of the entire property tax of $105,000 in the rent calculation, only the land tax estimated at $12,650 would have to be paid, there would be a saving of $92,350, corresponding to $1.44 per room per month.

Third, consider the vacancy allowance. The amount of $35,171 is too high. As a result of the relatively low rentals in Hillside and other limited-dividend projects, the structures are almost 100% rented. Instead of $35,171 for vacancy allowance, an amount of about 2½% of the rental income ($15,000) would be sufficient, resulting in a saving of $20,171, or $0.32 per room per month.

Table I shows the rent calculation after reduced taxes and vacancy allowance have been inserted.

Instead of $11.00, the rent would be $8.98, or in a round sum $9.00 per room per month.

Such a reduced rent is still an economic rent covering all expenses, including full interest and amortization returns. Thousands of families in New York and other large cities who are now paying $15 and more per room per month would be only too glad to move into such apartments.

TABLE I. REVISED RENT CALCULATION

Item	Amount	Saving per Room per Month
Interest and amortization on loan (unchanged)	$278,300	.....
Property tax (reduced)	12,650	$1.44
Operating expenses (unchanged)	197,920	.....
Federal income tax (omitted)	.....	0.26
Insurance and miscellaneous (unchanged)	9,000	.....
Dividends on stocks and surplus (unchanged)	61,537	.....
Vacancy allowance (reduced)	15,000	0.32
Total	$574,407	$2.02

Selection of Tenants

It should be perfectly clear at this point that a relation of tenant income to rent must be firmly established and as rigidly enforced as possible. As a general rule, ⅕ of the family income is accepted as the proper amount to be allowed for rent. Strict observance of this principle would mean that no tenant would be admitted to a government-supported housing project whose acknowledged annual income exceeds five times the annual rent. This principle has not been observed in the renting of Hillside apartments; nor at Knickerbocker Village and Boulevard Gardens, two other projects opened sometime ago and financed with federal loans.

The New York State Board of Housing has undertaken the difficult task of examining in these three projects the tenants' income and its relation to the rent they pay. In the report for 1936 the Board gives very interesting figures for 3,723 families: 600 spend less than

16%, 998 spend 16-20%, 1,457 spend 20-26%, 402 spend 26-30%, and 266 spend more than 30% of their income for rent. The Board has directed the corporations to eliminate gradually from these projects all families whose annual income exceeds five times the annual rent. The Board recognizes that an effective solution of this problem is essential to any sound housing policy.

How much more difficult, however, will be the selection of tenants when rentals are much less than $11 per room per month. The greater the amount a family can save in getting a modern apartment at an extraordinarily low rental, the greater is the danger of "chiseling." Some of these frauds could be prevented by a penalty on use of false income statements in applying for an apartment erected with government support. But even though the greatest care be taken in selection of applicants, incomes are bound to change subsequently. It would be too complicated to make an annual income survey of thousands of tenants. Nor would the corporations care to remove tenants who have met their obligations regularly, simply because of too high income. They would have to meet expenses for renovation and perhaps losses from vacancies. In order to escape all these difficulties, the margin between commercial and non-profit rent of dwellings of the same type should not be too large.

Trend of Government Policy

But rent calculations like the preceding ones, as well as contemplation of the dangerous consequences of very low rents, have been completely disregarded in the evolution of the federal housing policy. In the meantime, socially minded housing advocates with little financial understanding have succeeded in dominating and diverting this policy in an entirely different direction. The ideas of these housing advocates are similar to those expressed in a report of the National Housing Conference, submitted sometime ago to President Roosevelt. The author, Evans Clark, economic adviser to the New York Housing Authority, asserted:

> "At the present time about 18 millions of families in America or 60% of the nation have incomes of not more than $1,000 a year. This means that they can spend only $200 to $250 a year for rent. But taking the country as a whole, at least $314 per year is necessary to provide a family of five with 3½ rooms of decent and sanitary quarters at an average of $7.50 per room per month. By universal admission there must be therefore partial public financial support to remedy a threatening social and economic evil."

Others go farther and demand that rents have to be brought down to an average of $6 per room per month, to be available for this 60% of the nation's population. These average rents of $6 to $7.50 apply not only to metropolitan areas but also to smaller cities and towns. Only in the largest cities is there a need for apartment houses equipped with central heating plants, refrigerators, incinerators, etc. But even these cities have outskirts, where land is less expensive and where row houses without central plants could be economically built. The result would be a reduction of total costs and an even more remarkable reduction of rents, because operating expenses are much lower without a central plant. In smaller cities, a 4- to 5-room one-family house including land does not cost much more than $2,500 under large-scale production (even less in the South) and can be rented for about $25 a month or $5 per room per month and less. These houses would require no subsidies—only tax-exemption for the buildings and perhaps not even that—and would

satisfactorily meet the demands of any social housing advocate.

But these people are speaking of the whole country with their eyes on New York, Chicago, Philadelphia, etc., where most of them live. But how is the American population distributed?

12% live in 5 metropolitan cities, each with a population of 1,000,000 or more
23% live in 186 large cities, each with a population of 50,000 to 1,000,000
21% live in 2,974 small cities, each with a population of 2,500 to 5,000
44% live in 13,443 villages and on millions of farms

A Broader Base Is Needed

A far-sighted housing policy would emphasize new construction in places where a one-family house with a small garden does not cost much more than one room in a metropolitan area and where real low-rent housing can be achieved without subsidy. Smaller cities have the same need for modern dwellings at low rentals as do the larger ones. Possibly thousands of inhabitants of overcrowded large cities would move to smaller cities if they could get modern dwellings at low rentals and make a decent living there. Possibly many industrial plants would leave large cities if low-rent housing for their employees were provided elsewhere. Cooperation with such organizations as the United States Chamber of Commerce could contribute to a more balanced distribution of industry and population and at the same time initiate the building boom which is so essential to recovery.

But even in places where conditions for low-rent housing are ideal, there will not be much local initiation. Practical experience shows strong resistance by property owners who fear competition and by real estate brokers who cannot make commissions on this kind of housing. It seems too bad that these groups so often dominate city governments. A tremendous amount of educating needs to be done to stimulate the interest of smaller cities in housing.

Nevertheless, apartment-house construction in metropolitan areas for low-wage earners cannot be neglected. How shall reduction of the non-profit rent to an average of $6 per room per month be effected? In no case through a capital subsidy in form of an outright grant, but only through an interest subsidy or a rent subsidy. Interest subsidy means a government contribution to the housing body to reduce all its rents, whereas a rent subsidy, such as I would visualize, means contributions to individual tenants. Rent subsidies are a matter of local welfare; they are more economical than capital or interest subsidies, as well as more efficient. Not only average families with a steady low income are to be assisted, but also large families with a steady income and families of every kind with no steady income or no income.

But individual local rent subsidies do not correspond to the demands of social housing advocates. The Federal Government has to give capital subsidies, outright grants amounting to at least 30% of construction cost. Little attention has been paid to how the money for these subsidies shall be raised by the Federal Government. More radical housing reformers would employ these subsidies as a means of redistributing income and wealth. The wealthy citizen has to be taxed especially in order to provide housing subsidies for the poor. Such ideas have nothing at all to do with the housing problem. They give it the aspect of a radical movement and have already done much harm.

Slum Clearance

So far the question of slum clearance has not been touched. In every larger

city throughout the world are thousands and thousands of obsolete dwellings unfit for human habitation. Such areas are an actual economic as well as a social liability. Each year enormous sums are spent for police, fire protection, and health in these areas, greatly out of proportion to that spent in other sections of the city. The cost of sweeping these slums away would not be an undue burden on the city budget in view of the present annual outlay which only perpetuates such conditions. From aesthetic considerations alone the cities should be ashamed to carry such ugly blotches year after year in the face of a technological advance which can produce homes of strength and beauty.

At present there are only a few slum clearance projects. One of them is the Knickerbocker Village in New York City (Borough of Manhattan), a limited-dividend housing corporation containing 1,593 dwelling units. Although the building is tax-exempt, rents per room per month average $12.50, which is prohibitive for people of small income.

This rent results from the following figures:

Land cost	$3,250,400
Building cost	$6,212,500
Total cost	$9,462,900

The Reconstruction Finance Corporation has granted to this project a loan of $8,075,000 at 4% interest, the only example of an R.F.C. loan for housing.

In this slum-clearance project, cost of the land is almost 30% of total cost, whereas for the previously mentioned Hillside Housing Corporation where vacant land was used, this proportion is less than 10%. It is very interesting to compare other data for both projects:

	Construction Cost per Room	Land Cost per Room	Total Cost per Room
Hillside Housing Corp.	$1,060.91	$ 94.68	$1,155.59
Knickerbocker Village	$1,186.95	$621.02	$1,807.98

The construction costs do not differ very much. The great disparity appears in land costs. To achieve rents of about $9.00 per room per month it is necessary that land costs do not far exceed 10% of total cost. That means that 2½ million dollars should be removed from the rent calculation at Knickerbocker Village and be given as an outright grant or at least as a non-interest-bearing loan. But who shall grant this subsidy? Not the Federal Government. If a city decides to rid itself of slums and save itself the expenses of maintaining these areas, the financial responsibility as well as the responsibility of planning should fall on the city. But slum clearance cannot be done hurriedly on a large scale. Housing on vacant land, in the city or outside, must be built first to rehouse slum dwellers. When there is enough new housing at low rentals, the slums may depopulate themselves. To press this movement the city should condemn all dwellings unfit for human habitation. The owners of these properties must continue to pay their property taxes. To save these taxes, they will be forced either to demolish their houses or to sell the entire property to the city at a reasonable price. Furthermore, it is very doubtful from the standpoint of city planning whether all these slum areas should be rebuilt with apartment houses at low rentals. Slum areas are generally located in the oldest sections of cities where open space is scarce. In many cases demolished slum houses will not be replaced by residential building. Such planned slum clearance would

advance at a slow pace, but more effectively and much less expensively than through heedless purchase of slum areas, demolition of buildings, and rebuilding.

Another slum-clearance project in New York City, called First Houses, was erected by the New York Housing Authority and contains 122 apartments. The rent is only $6.05 per room per month, because the rent covers only interest and amortization on a land cost of about $215,000 and operating expenses. Money for construction was granted by the W.P.A. for which no interest and amortization charges are made. The exact amount is not publicly known, but estimates range to about one million dollars. In consequence, the taxpayer has to subsidize each of the 122 tenants by an amount at least equivalent to the monthly rent actually paid. What fantastic sums would be necessary to replace the other 500,000 slum dwellings in Manhattan, Brooklyn, and the Bronx in the same manner! Nevertheless, in a pamphlet published by the New York Housing Authority which brings out every detail of the set-up of First Houses except the exact building costs granted by W.P.A., Mr. Langdon Post, chairman of the Authority has written as the first sentence:

> "The opening of First Houses is the answer in brick and mortar to the question, is it possible to clear slums and rehouse the people who live there? . . . This is the answer to the doubting Thomasses who make it their business to point out why you cannot do something rather than how you can."

Now Mr. Post and his slum-clearance committee recommend a long-range housing program involving the expenditure of approximately 1½ billion dollars over a period of some 10 years which would result in ultimate clearance and rebuilding of New York City's extensive slum and blighted areas. As a first step in this long-range program, the committee urged the expenditure of $150,000,000 to provide low-rental apartments for approximately 31,000 families at rentals ranging from $4.50 to $7 per room per month. Of course, the Federal Government must furnish the money without interest, receiving only an amortization of 2% extending over 50 years. The Federal Government, to which this plan was presented, did the only reasonable thing; it rejected the proposal. However, in the Authority's recent annual report, this comment appears on the fate of the plan: "It was not adopted by the Federal Administration, it must nevertheless form the basis of action toward re-housing during the coming decade!"

But did First Houses at least rehouse the tenants of the former slum houses? Who are the 122 happy families who were admitted to these model apartments? The previously mentioned pamphlet of the New York Housing Authority has a special chapter: "How the tenants were chosen!" Within two weeks of the announcement that applications would be accepted 3,000 had filed and it was necessary to put a stop to them. "The Authority's management committee decided on the following procedure: Those living or working in the district and earning from four to five times the rent and having families of a size suited to the project (most of the apartments were three rooms) were marked for investigation, the remainder being held ineligible." In other words, a family had to have a steady income of 70 to 90 dollars a month, not more, but not less. Those excluded were unemployed families and families with no steady income or an income of less than $70 a month.

"The successful applicant had more than $1,000 insurance but no more than $3,000 and a savings account of not less than $100 and not more than $1,000, he had been steadily employed for one year and more and had a more or less stable income . . . All but one family among the successful applicants were residents of the lower East Side and only six families lived on the site of the project. This is explained, however, by the fact, that the old buildings were so dilapidated that except for two or three houses, they were practically untenanted."

As to given statistical figures, in every apartment lives a family consisting of two adults with steady employment and regular income and usually not more than one child. Thus First Houses lodge only a restricted and rather secured group of low-wage earners, disciples of birth control. This project is not only unsound from the financial but also from the social standpoint.

When once the principle of self-liquidating, low-rent housing is abandoned, no wonder many expensive frills are introduced. All these low-rent housing projects are equipped with community rooms, playgrounds, nursery schools, kindergartens, etc. These facilities are desirable; they make a housing development more attractive, and it is much easier for residents to become acquainted with one another. The tenants are not inclined to move as often as they do in commercial housing. But in a self-liquidating, low-rent housing project the management must estimate carefully how much can economically be spent for these social purposes. Then the total amount must be included in the rent calculation and be paid by each tenant as an addition to his rent; 25c per room per month would seem to be the upper limit. The management will then try to cover as nearly as possible the expenses for social purposes. It will not initiate community activities, but leave these to the tenants who should pay any special expenses entailed in their group organizations. Extraordinary expenses for such things as nursery schools or kindergartens should certainly for the most part be the responsibility of the tenants using them. It should be realized that better housing at low rentals is the goal and there must be a sense of proportion in regard to expenditures for community activities.

Many of the social housing advocates disagree with the above thesis. To make life more abundant in these housing projects, the management has to undertake and to pay for all community and social activities. Along the same lines they propose weekly collection of rents in the tenants' apartments, an extraordinary idea when the expense and administrative difficulties are considered. The social workers feel it necessary to have this entry to the tenants' apartments for the purpose of instructing them in their household details. The procedure of weekly rent collection is followed in First Houses. No wonder these social housing advocates discovered that low-rent housing management is a completely new profession requiring special training. Imagine the increase in subsidy necessary to maintain a staff of social workers for all those purposes!

Such a method of housing management could never fit into a limited-dividend corporation. The social housing advocates do not like these non-profit, but nevertheless private, enterprises. Some of them have travelled around in Europe and admired especially the Vienna post-war municipal housing without examining the unique economic and political conditions and the unique financing. They did not consider that the German cities which, in contrast to those in the United States, own most of the water, gas, electric plants, street car, bus lines and subways, soon gave

up their municipal housing. They transferred it to limited-dividend housing corporations, the capital stock of which they owned completely or in majority. They did this to keep management out of red tape and politics. How can the average American city, so lacking in a highly trained non-political administration, jump into the housing venture? How much more absurd is the idea that the Federal Government has to build housing developments throughout the country, renting dwellings, collecting rentals! Red tape and waste are inevitably connected with such a scheme. Economic considerations, however, are not interesting to social housing advocates, when they are in conflict with their principles. One of these principles is fully owned government housing.

Evolution of Federal Housing Policy

Incredible as it may seem, the most radical ideas of the social housing advocates were victorious. After six months of experimentation the Housing Division of P.W.A. changed abruptly its original policy of giving loans to limited-dividend corporations and undertook direct building on vacant land and in slum areas. About 125 million dollars were allocated and 48 projects to house 25,000 families are now under way. These projects are scattered over the country, 25 in the North, 25 in the South, nothing in the far West. In order to bring rents down to an average of $7 per room per month, 45% of the building costs will be an outright grant. That means that about 50 million dollars are written off immediately. Only the balance is repayable over a period of 60 years with an interest rate of 3%. Rent terms in each project are determined by its final cost. The first project to be completed is Techwood in Atlanta, Ga., containing 604 apartments. The rentals run from $22.35 for 3 rooms to $39.65 for 6 rooms, including heat, light, and refrigeration. But nobody save those now living in slums are eligible for occupancy.

With such heavily subsidized tax-exempt federal housing, limited-dividend corporations which do not get one cent of subsidy and have to pay taxes cannot compete. It is, therefore, not very honest to pretend that they were a failure and did not produce low rentals. But it remains to be seen in the future whether or not rentals of federal housing projects will be a great disappointment. There would have been no low rentals at all according to the ruling of the Comptroller General. In January, 1936 he decided that the Federal Emergency Administration might not sell or fix rentals of low-rent housing below the cost of such projects. To offset this ruling, Congress had to pass a bill authorizing the Government to fix rentals of federally owned, low-rent housing below its cost, further authorizing lump-sum payments in lieu of property taxes, not greater than 5% of gross annual rentals of a project.

One of the original principles of the Housing Division has already been abandoned. The difficulties of central management in Washington have been realized and there is talk of leasing or selling completed projects to local housing authorities or other public bodies, which shall operate them under supervision of the Housing Division. The final fate of the federal housing program is uncertain. Some day, when the financial balance is drawn, the excessive cost of this experiment will be revealed. The expenses of the tremendous staff of the Housing Division must be included in total cost.

Still the social housing advocates are not convinced of the failure of the federal housing program. They found a warm

sponsor in Senator Robert F. Wagner of New York, who had already introduced a housing bill in the Senate last year. Representative Ellenbogen of Pennsylvania had introduced a different bill in the House. A new Wagner-Ellenbogen Bill was introduced in the last session of Congress. The bill would have replaced the Housing Division of P.W.A. with a new agency to be called the United States Housing Authority with four members and with the Secretary of the Interior serving ex officio. To house families of low income, the Authority would have dealt with state or local governmental housing bodies. It also referred to limited-dividend housing corporations. It further had the right to develop and administer demonstration projects. The Authority would have had the power to make loans at interest rates determined by it and to make grants to public housing agencies. The amount of any grant would not have exceeded 45% of the total cost of the project. The Authority could also have lent to limited-dividend corporations at interest rates not less than the going federal rate. This type of loan was not to exceed 85% of the value of the project and 25 million dollars in one year. Funds to carry out the program for the next four fiscal years (until June 30, 1940) would have come from three sources. In addition to 1 million dollars for subscription of the capital stock, the bill called for a total appropriation of 325 millions out of the federal budget. Another 100 million dollars was to be borrowed from the R.F.C. at interest rates not exceeding cost of the money to the Corporation plus ⅛ of 1%. Finally, the Authority would have been empowered to issue bonds, guaranteed by the Federal Government, aggregating a total of 550 million dollars. The total amount at the disposal of the Authority would have been 976 million dollars.

The bill brought forward one significant step in recognizing the principle of local initiative. But the inefficient and costly policy of heavily subsidized housing, criticized in this article, would have been continued as a kind of municipal housing. No wonder the social housing advocates and their associations made every effort to push the bill through. But they succeeded only in the Senate and not with the original bill which was greatly changed in Committee. In this form the bill passed the Senate; it died, however, in the Committee of the House shortly before Congress adjourned in June, 1936. In view of its doubtful constitutionality (the whole venture of subsidized federal housing was never approved by the legislative branch of the Federal Government, but was enacted under the Emergency Relief Act of 1935) and of the growing opposition to new deficit-increasing federal expenditures, the President was not inclined to put his "Magic Must" on the bill.

Now left without any housing legislation at all, Congress is not to blame, but only those housing advocates whose exaggerated demands were crystallized in the Wagner-Ellenbogen Bill. With the death of this bill even the financially sound conception of federal support on a self-liquidating basis is endangered.

A Way Out

But such a result can be prevented without any special housing legislation. Another federal housing agency, the Federal Housing Administration (F. H.A.) is also engaged in large-scale housing. But the F.H.A. is no lending agency; it merely insures mortgages given by private financial institutions. Only a limited number of those, such as

life insurance companies, are able to make the relatively large loans for large-scale housing projects and they are generally already overloaded with real estate investments. For this reason, large-scale housing mortgage insurance has not been very successful as yet. Only three projects, Colonial Village in Clarenton, Va. (near Washington, D.C.), an extension to it, and also one in Meadville, Pa. are completed; several others are under construction. But because the mortgages are given by insurance companies at prevailing interest rates, rentals in Clarenton are so high that the project cannot be classified as low-rent housing.

A different picture, however, would obtain if some other federal agency would cooperate. The R.F.C. Mortgage Company already has been induced to give insured mortgages for large-scale housing under certain stringent conditions, especially as to interest rates. But that is inadequate. In order to accomplish low-rent housing, the R.F.C. (or its Mortgage Company), which ought to dispose of 100 million dollars for execution of the Wagner-Ellenbogen Bill, should invest the same amount at the interest rates prescribed in the bill (cost of money to the Corporation plus ⅛ of 1%) in insured mortgages for large-scale housing projects.

Fortunately, the rules and regulations of the Large-Scale Housing Division of the F.H.A. are not influenced at all by the ideas of social housing advocates. Eligible mortgagors are private limited-dividend housing corporations as well as public housing bodies. As to the capital structure, there is no discrimination between the different kinds of housing agencies. The amount of equity investment required for any large-scale housing project shall be an amount at least equivalent to the value of the land and an additional working capital as the Administrator may require. Public housing authorities or other governmental instrumentalities must have initial funds obtained from government loans, grants, or subsidies which may be considered in lieu of the equity required from private corporations. Two main types of financing may be accomplished under the insured mortgage of a large-scale housing project. One type of transaction is the execution by a single lending agency which advances the entire amount borrowed. Eligible as mortgagees are chartered institutions or other permanent organizations having succession, as well as the Federal or a state government or an agency, instrumentality, or subdivision thereof. The second method may consist of the execution by the mortgagor of an indenture of trust to an appropriate trustee providing for issue and sale thereunder of bonds or other obligations. This opens a wide field for financing large-scale housing projects, especially for local housing authorities which can issue their own bonds. Cities which are now too eager to get federal housing grants could use their own ingenuity to accomplish better housing for their population.

But the best method of financing will always be to procure the mortgage through a single lending agency. According to my proposal there would be two separate agencies. The F.H.A. would examine and approve applications of housing bodies and supervise the projects after completion. The R.F.C. would give the loans, insured by F.H.A., and collect the interest and amortization returns. But the function of the R.F.C. could only be a temporary one. It should eventually be replaced by a public or private mortgage bank, which could issue its own bonds in order to obtain funds for granting mortgages.

Only by selling its own bonds can a mortgage institution keep intact the principle of bank liquidity. The bonds would have to be issued for the same terms as the mortgages. Amortization returns would have to be used for calling or buying back the bonds.

In most European countries private and public mortgage banks have been successfully operating under rigid governmental supervision, some of them nearly a century. It is a deficiency of the banking system of this country that such mortgage institutions do not exist. An ordinary bank with short-term deposits cannot go very deeply into the mortgage market without endangering its liquidity. The collapse of many banks in 1933 was caused to a great extent by this abuse. The Federal Government had to relieve banks, saving institutions, building and loan associations by refinancing their mortgages through the Federal Home Loan Bank System, Home Owners' Loan Corporation, Farm Credit Corporation, etc. But in spite of these experiences no mortgage bank has as yet been organized, although the F.H.A. is empowered to charter and supervise national mortgage associations. These associations would obtain funds by sale of bonds or debentures secured by insured mortgages. It seems that the most important step toward a permanent low-rent housing program would be organization of one or more mortgage banks.

Such a mortgage bank could be a federal one, if the United States Government would subscribe the entire capital stock, or it could be a private one. A private mortgage bank, however, would have to offer its bonds at an interest rate of at least 4% in order to make them attractive to the public. A federal mortgage bank could issue bonds, guaranteed by the United States Government, at 3% interest, or even less. For this reason mortgages of a non-profit federal mortgage bank only could produce low-rent housing. A special insurance of the mortgages would not be necessary. Such a federal mortgage bank could take over the housing loans of R.F.C., P.W.A., and the purchase money mortgages of the actual federal housing program if these projects are sold to local housing authorities. It is interesting to observe that a bill for creation of a federal or central mortgage bank has already been introduced in Congress by Senator Fletcher and the National Association of Real Estate Boards is campaigning for its passage.

The social housing advocates have not, or at least not sufficiently, recognized the urgent need of a federal mortgage bank. They have lost sight of this need in pressing their schemes for subsidy. But a federal mortgage bank can only become a reality if vigorous support is behind such a plan. Many social housing advocates may not be able to change their direction so quickly. Other people who recognize the economics of the housing problem will take the lead in employing it as the strongest weapon in their fight for recovery. Not a revived Wagner-Ellenbogen Bill, but a federal mortgage bank bill should be submitted to the next Congress.

Long-Distance Natural Gas Pipe Lines

By C. EMERY TROXEL*

UNTIL the latter part of the 19th century natural gas was seldom piped more than 50 to 75 miles; only short and experimental lines were built from eastern and Appalachian gas fields before 1890. Moreover, compressors and other means of pipe line pressure control were not generally employed until after 1910. Even in 1925 the distance of gas transmission rarely exceeded 150 miles. At this time a thick network of cast-iron gas lines spread over the upper Appalachian area, and customers in western and southwestern states were usually served from short local lines. The introduction of various technical improvements in pipe-line construction began in 1927 to revitalize and change the perspective of the natural gas industry. These improvements in pipe-line construction have permitted the natural gas industry to expand more since the present depression began than it had during the previous 15 or 20 years.

The need for regulation of the interstate business of natural gas pipe lines, one of the problems which will be treated in subsequent articles, has been heightened by the recent increase in long-distance gas pipe lines and the probable future expansion of the market for natural gas. In 1934 roughly 50% of natural gas sales by public utilities was transported interstate because the largest gas fields are located chiefly in areas far distant from large markets for natural gas.[1] Since state public service commissions have usually been denied regulation of interstate movements of natural gas, a bill introduced in the House of Representatives on March 6, 1936 would provide federal regulation of these now unregulated interstate natural gas pipe lines.[2] The Federal Trade Commission would be given power to fix reasonable rates and service standards, fix depreciation rates, and order extensions or restrict abandonments of service for all high-pressure interstate natural gas lines. Hence the following survey of recently constructed natural gas pipe lines will serve as background for forthcoming studies of regulation of natural gas utilities.

Natural Gas Pipe-Line Mileage

Only meager information is available concerning annual growth in mileage of natural gas transmission lines. To date no federal agency has gathered data on pipe-line construction regularly. Nor have state public service commissions compiled such data.[3] On July 1, 1929 the United States Bureau of Mines estimated that there were 40,800 miles of natural gas trunk lines in the United States, of which about 75% were located in Texas, Ohio, Pennsylvania, West Virginia, Oklahoma, and Kansas.[4] A year later the Bureau of Mines estimated the natural gas trunk-line mileage of the United States to be 50,000.[5]

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[1] U. S. Department of Interior, Bureau of Mines, *Mineral Market Reports*, No. M.M.S. 414, October 29, 1935.

[2] 74th Cong., 2d Sess., H. R. 11662. On May 12, 1936 this bill, after being reported upon favorably by the Interstate and Foreign Commerce Committee of the House, was introduced with minor alterations as H. R. 12680.

[3] Another difficulty in calculating pipe-line mileage is the absence of a clear line of demarcation between transmission and consumer distribution lines. There is also the difficulty of distinguishing between transmission and field-gathering lines.

[4] U. S. Department of Commerce, Bureau of Mines, *Mineral Resources of the United States*, 1929, p. 339.

[5] *Ibid.*, 1930, p. 480.

An approximation of the number of miles of gas transmission lines at the end of 1933 can be made by counting all transmission lines listed in Brown's *Directory of American Gas Companies*.[6] Whenever data were available, mileage omitted in this *Directory* has been added. In this manner a total of 65,543 miles of natural gas transmission line was calculated for 1933.[7] Comparison of this total for 1933 with the Bureau of Mines estimate for 1929 shows that approximately 25,000 miles of natural gas pipe line were constructed in the United States between July, 1929 and December, 1933.[8] Thus, on the basis of these two approximations, natural gas pipeline mileage has increased roughly 50 or 60% in 4½ years, and the majority of these 25,000 miles of new lines were laid from the western and southwestern natural gas fields.[9]

Chart I showing the principal pipe lines reveals the concentration of natural gas lines in the areas of natural gas

[6] New York: Robbins Publishing Co., 1934. The writer has endeavored to eliminate all duplications in calculating the total from these data.

[7] Scarcely any pipe lines have been constructed since 1933.

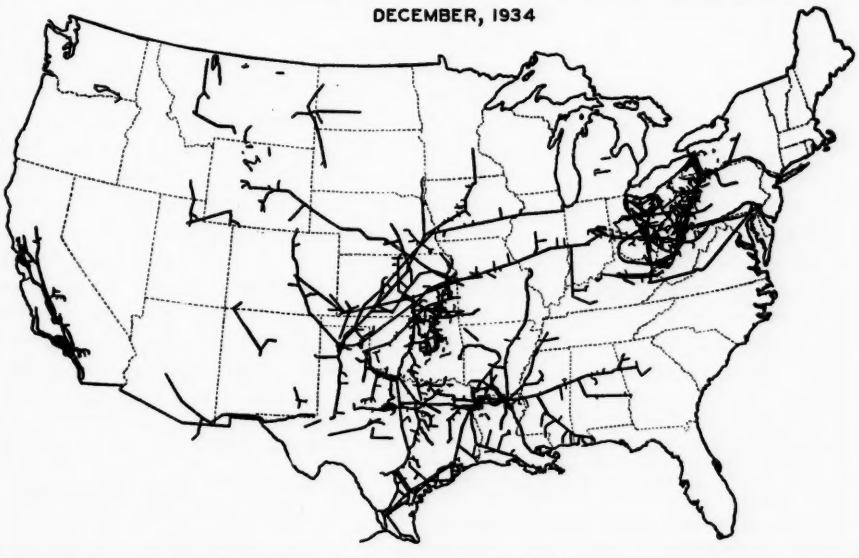
[8] The Bureau of Mines asserts that "it is difficult to estimate the total mileage of natural gas pipe lines, chiefly because there is no definite dividing line between trunk and gathering lines." (*Op. cit.*, 1930, p. 480.) Consequently, the author presents the 25,000-mile increase in gas lines since 1929 as an estimate which may contain an error of as much as 5,000 miles.

[9] Several former oil transmission lines have been reconditioned for natural gas transportation. One of these revamped lines is the former National Transit Oil Pipe line from Olean, New York to Paterson, New Jersey. This line has a daily gas capacity of 15 to 18 million cu. ft. The Kansas Pipe Line & Gas Company (North American Light & Power subsidiary) and the North Central Gas Company have leased the old Teapot Dome oil line which runs from Welch, Wyoming to Freeman, Missouri (67 *Gas Age-Record* 817 (May 23, 1931)). Since oil lines are largely of wrought iron construction and not of large capacity, any general shift of oil pipe lines to the transportation of natural gas is unlikely.

CHART I

PRINCIPAL NATURAL GAS TRANSMISSION LINES IN THE UNITED STATES

DECEMBER, 1934



Sources: U. S. Bureau of Mines and miscellaneous sources.

production. This network of gas lines is thickest in the Appalachian and east central regions. But pipe lines from western and southwestern gas fields are longer, generally, than the eastern lines because (1) the pipe-line system in the eastern states was built some 30 or 40 years before recent pipe-line improvements had been made, and (2) gas from the newly developed fields of the West and Southwest must be transported long distances to reach the large markets of the Middle West and South.

Causes of Recent Pipe-Line Growth

Several natural gas fields of the Southwest and West, such as the Panhandle, Monroe, Hugoton, and Kettleman Hills pools, offer ample commercial quantities of natural gas. Natural gas usually may be had for eight or less cents per thousand cubic feet (MCF) at the wells in these new fields. This factor, coupled with the existence of large reserves which promise to last for at least the life of the lines, have given an economic basis for construction of pipe lines 500-1,000 miles in length.

Technical improvements have changed the natural gas business from a local industry with little hope of expansion to an industry which aggressively seeks distant fuel markets. Use of welded or seamless steel pipe, capable of withstanding pressures of 500 or more pounds per square inch without leakage or breakage, has been a leading factor in this expansion. Some of the largest lines have a daily capacity of 100 to 175 million cubic feet. Also, the development of electric and other welding processes has reduced the cost of steel pipe. A concomitant development has been the welding of pipe-line joints, a process which has replaced coupler or "screw" types of joints.[10] Other mechanical advances have been registered in improved engines for compressing gas during transmission. Further construction-cost reductions have been obtained through a ditching machine which provides the trench, tractors with short booms which lower the pipe into the trench, and a back-filling machine which completes the task.[11]

Outstanding Long-Distance Pipe Lines

Apparently the first long-distance natural gas pipe line was completed in 1925 by the Magnolia Gas Company. It was a 217-mile, 14- to 18-inch line from northeastern Texas to Beaumont where the line served primarily the Magnolia Oil refinery. Gas from the Monroe-Richland area of Louisiana is now being transported to consumers in Mississippi, Alabama, Georgia, Tennessee, and Missouri. Eastern Kentucky fields are now supplying gas customers in Philadelphia and Washington. The nine long-distance natural gas lines originating in the world's largest "dry"[12] gas field, the Panhandle field of Texas, transmit gas to customers in cities from Dallas to Minneapolis and from Denver to Detroit. Rocky Mountain gas fields are now sending gas to Phoenix, Salt Lake City, Butte, and cities of that area, and several large gas pipe lines, principally supplied from the Kettleman Hills field, have been completed to Los

[10] A joint welded by either of these methods usually withstands a greater pressure than the pipe line. Use of the electric arc method began in 1928 or 1929. The Lindeweld joint-welding process is another method recently employed.

[11] At the point of consumption, pressure regulators are installed to reduce gas pressure in order to permit utilization of gas in customers' burners. Also, these pressure regulators are used to reduce the pressure of gas entering both lateral lines and city distribution systems.

[12] "Dry" gas contains less natural gasoline than "wet" gas obtained in oil fields; because of its high methane content, "dry" gas may be utilized immediately in burners. Usually, however, "dry" gas like "wet" gas is treated for extraction of its gasoline content before being transported.

Angeles and San Francisco. Table I contains detailed data on some recently constructed lines.

These recently constructed long-distance pipe lines have often been financed jointly by two or more corporate groups. One or more of the corporate interests may produce natural gas; other interests in the combination may be owners of customer distribution systems. For some of these jointly financed lines there was no public sale of securities. For example, the Columbia Gas & Electric Corporation holds 70% of the voting shares of the Atlantic Seaboard Corporation in which Standard Oil of New Jersey is the other stockholder. The Cities Service system has 15% of the voting control of the Denver pipe line and the remaining voting shares are divided equally between Standard Oil of New Jersey and Sinclair Consolidated Oil. Voting control of the Chicago pipe line (Natural Gas Pipe Line Co. of America) is divided as follows: Cities Service Company, 26.6%;

TABLE I. A DESCRIPTION OF OUTSTANDING NATURAL GAS PIPE LINES BUILT SINCE 1926

Name of Company	Miles of Main Line	Field of Supply	Principal Destination	Diameter of Line (in Inches)	Date of Completion
Magnolia Gas Co.	217	Northeastern Texas	Beaumont, Texas	14 to 18	1925
Interstate Natural Gas Co.	280	Monroe and Richland, La.	Baton Rouge, New Orleans	22 and 18	Baton Rouge 1926 New Orleans 1927
Memphis Natural Gas Co.	250	Monroe and Richland	Memphis	18	Dec., 1928
Southern Natural Gas Corp.*	462	Monroe and Richland	Birmingham, Atlanta	22 and 20	Nov., 1929
Mississippi River Fuel Co.†	526	Monroe and Richland	St. Louis	22	Nov., 1930
United Gas Public Service Co.	158	Louisiana Fields.	Franklin, La.	14	June, 1931
Lone Star Gas Co.	350	Panhandle (Tex.)	Fort Worth	20 to 16	1926
Cities Service Pipe Line Co.	450	Panhandle	Kansas City, Mo.	20	1928
Colorado-Interstate Gas Co.	340	Panhandle	Denver	22 and 20	June, 1928
Natural Gas Pipe Line Co. of America	905	Panhandle	Chicago	24	Aug., 1931
Panhandle-Eastern Pipe Line Co.‡	1200	Panhandle	Detroit	24 and 22	July, 1936
Northern Natural Gas Co.	1100	Panhandle and Hugoton	Minneapolis	24 to 16	1932
United Gas Co.	150	Jennings (South Texas)	Monterey, Mex.	12	1930
Atlantic Seaboard Corp.	467	Eastern, Ky.	Coatesville, Pa.	22	Mar., 1932
Lycoming Natural Gas Co.	110	Tioga, Pa.	Syracuse, N. Y.	20	1931
Western Pub. Serv. Corp.	345	Baxter Basin Hiawatha, Clay Basin, Wyo.	Salt Lake City Odgen, Utah	18	1929
Montana Power Gas Co.	200	Cut Bank, Mont.	Anaconda, Butte	20	1931
Montana Power Gas Co.	120	Dry Creek, Mont.	Bozeman	10	1931
Western Gas Co.	707	Jal, N. Mex.	Phoenix	16 and 10	Jan., 1934
Pacific Gas & Elec. Corp.	325	Buttonwillow, Cal.	San Francisco	22	1929
Southern Fuel Co.	207	Kettleman Hills Cal.	Los Angeles	26	1931
Standard-Pacific Gas Line	205	Kettleman Hills.	San Francisco	26 and 20	

* The Tri-Utilities Company, a holding company, controlled the Southern Natural Gas Company until the recent receivership of the Ohrstrom system. G. L. Ohrstrom's ambitious and sometimes reckless financial plans were grounded in 1931.
† An Electric Bond & Share subsidiary.
‡ The line to Muncie, Indiana, 960 miles, was completed in 1931

Natural Gas Investment Company, 26.6%; Texas Company, 17.6%; Sinclair Consolidated Oil, 13.3%; Standard Oil of New Jersey, 13.3%; Columbian Carbon, 2.5%.[13]

As indicated in the following summary, the five largest holding companies in the natural gas industry controlled over 60% of the nation's natural gas transmission mileage at the end of 1933:

Company*	Miles	Per Cent of Total
Columbia Gas & Electric Corp....	16,683	25.4%
Electric Bond & Share Co.....	7,717	11.8
Cities Service Co.....	7,157	10.9
Standard Oil Co. of New Jersey..	7,103	10.8
Standard Gas & Electric Co.....	2,597	3.6

*These data were compiled from Brown's *Directory*, *op. cit.*, Moody's Investors Service, *Public Utilities*, 1934, and miscellaneous sources.

Because the Crawford interests of Pittsburgh, which dominate the Columbia Gas & Electric system, also control the Lone Star Gas Corporation, it is fair to say that Columbia Gas & Electric indirectly controls more than 21,000 miles of gas line.

Displacement of Other Fuels

This widening market for natural gas, particularly in the Middle West and South, has expanded geographically the area of effective competition among coal, fuel oil, and natural gas. Competition of electricity is not encountered, usually, except for domestic cooking and water heating. Unless new fuel uses are developed, natural gas sales by these new, long pipe lines reduce the revenue previously obtained by intrenched coal and fuel oil producers and dealers. The struggle for annexation of the industrial fuel market and the house-heating load has brought coal, fuel oil, and natural gas into sharp competitive conflict. Often coal mine owners, coal dealers, and laborers have opposed vigorously some of the recent pipe-line extensions into regions which had, in the main, used coal as fuel.[14] In several instances this opposition of coal interests has prevented or delayed the commencement of natural gas service. Thus, competitive factors influence decidedly the price for some, if not all, uses of natural gas and consequently the distance of natural gas transmission is limited.

Many of the long pipe lines are bringing natural gas to communities which formerly had been served with manufactured gas. When the distance is not too great, natural gas lines are able to offer a fuel at a lower price in terms of B.t.u's, since a unit of natural gas has about twice the heat content of a similar quantity of manufactured gas. With the entrance of natural gas, the plant producing manufactured gas is useful only, if at all, as stand-by equipment. Even the gas holders of manufactured gas plants are no longer necessary, because gas may be "packed" under pressure in the pipe line during periods of low gas consumption. Most distribution companies, however, continue to use their gas holders after a change-over to natural gas service for, in this manner, an additional supply of gas may be stored to meet peak

[13] 72d Cong., 2d Sess., *Report on Pipe Lines*, 2 parts, House Report No. 2192 (1933). Federal Trade Commission, *Utility Corporations*, Doc. 92, No. 62, 70th Cong., 1st Sess., p. 398.

[14] This opposition has been strongest in Iowa, Nebraska, Minnesota, and Illinois. In Minneapolis, for example, the coal dealers and teamsters vigorously fought the entrance of natural gas lines. In Iowa City, Iowa coal dealers obtained an injunction against the entrance of natural gas service on the pretense that the laying of the natural gas line would make impossible coal deliveries. The Illinois Commerce Commission dismissed a complaint of coal dealers that wholesale natural gas prices were too low. (*Illinois Coal Operators Assoc. v. Peoples Gas Light & Coke Co.*, 7 P. U. R. (N. S.) 403, 1934.) In two other cases the opposition of coal producers, miners, and dealers was not sufficient to prevent the sale of natural gas. (*Re Ogden Gas Co.* (Utah), P. U. R. 1929 B 127; *Re L. B. Denning* (Utah), P. U. R. 1931 C 136.)

demands or to meet a possible sudden failure of the natural gas supply.

In a number of cities reached by these long-distance lines, a mixture of natural and manufactured gas is used. The heat content of this mixed gas is generally 800 to 850 B.t.u.'s per cubic foot. Public service companies which distribute this mixed gas have not emphasized any advantages of mixed gas service over complete natural gas service except that active use is made of the existing gas plant. It is believed that this partial use of manufactured gas plants is continued so that the old plant may be included as a part of the rate-base in the event of a rate controversy.

Furthermore, the change from manufactured to natural gas necessitates alterations in distribution equipment and customer appliances. Often the "dryness" of natural gas requires that the distribution line joints be repacked to prevent gas leakage. Consumers' appliances must be altered or replaced before natural gas service is begun, one of the major changes being a reduction of gas burner orifices because of the higher heat content of natural gas. The gas distribution companies have assumed generally the responsibility and cost of making these changes.[15]

The Cost of Pipe Lines

The construction of these long lines requires an investment ranging from $30,000 to $60,000 per mile.[16] The usual variables, aside from unit costs of materials and labor, which influence this investment are: diameter of the line, the terrain (i. e., number of river and creek crossings and the general topography of the land), and the character of the subsurface. The cost of steel pipe is approximately $100.00 per ton and 180 to 190 tons per mile are commonly used for the larger lines. It has been estimated that general outlays, plus the cost of surveying, acquiring a right-of-way, building a telephone line, as well as of supervision, together with that part of the ditching, painting, and cleaning costs which are constant, will aggregate $3,000 per mile regardless of the size of the pipe line. Welding, unloading, and hauling the pipe have been estimated to cost about $12.00 per ton of steel per mile. Ditching, painting, and back-filling will be approximately $260 per mile per inch of diameter of the pipe.[17]

The following pipe-line construction costs of the Southern Natural Gas Company, exclusive of compressor-station costs, illustrate cost variations according to diameter of pipe lines:[18]

Diameter of Pipe (Inches)	Number of Miles	Average Cost per Mile
22	281	$40,815
20	176	32,121
18	33	21,879
12¾	201	14,987
10¾	171	10,504
8⅝	84	8,891
6⅝	205	7,048
4½	79	5,137
3½	10	4,624

Compressor stations, which are installed at intervals of 75 to 100 miles, cost from $400,000 to $700,000; the

[15] This course has been dictated by the desire of gas utility companies to maintain good public relations, and by their desire to render satisfactory service which would not be immediately realized if appliance alterations were made by customers. In Chicago, for instance, gas appliance alterations cost over $2,000,000.

[16] It has not been possible to compute the average investment per mile for each pipe line system because each system has large, as well as small, diameter lines; and the balance sheets of the companies are not itemized adequately to permit accurate calculations.

[17] Kepler, W. R., "Gas Pipe Lines," 66 *Gas Age-Record* 709-14, 726-8 (November 1, 1930). In level mid-western states natural gas pipe line has been laid in good weather at a daily rate of 6,000 feet.

[18] Federal Trade Commission, *Utility Corporations* Doc. 92, No. 77, 70th Cong., 1st Sess., p. 510.

amount of installed horsepower is the principal variable. One writer has stated that $100,000 should be allowed to cover cost of the compressor-station site, plus housing and development of a water supply. In addition, compressor-station investment will include approximately $125.00 for each horsepower of capacity.[19] Thus, the total cost of a station of 4,000 h. p. capacity would be approximately $600,000.

On the basis of these construction-cost estimates it is possible to approximate the investment in a natural gas pipe line. Let us assume in the following calculations a 500-mile line with six compressor stations of 5,000 h.p. capacity. Such a line would have a daily capacity approximating 150,000,000 cubic feet of gas, and its cost may be estimated as follows:

Surveying, right-of-way, supervision, etc.	$ 1,500,000
Steel pipe (185 tons per mile)	9,250,000
Hauling, unloading, etc., of pipe	1,110,000
Ditching, painting, labor, back-filling	2,860,000
6 compressor stations	4,350,000
Total Cost	$19,070,000
Cost per mile (exclusive of other items)	$ 38,140

Other costs, such as bridging streams, office space, interest during construction, construction of gas field-gathering lines and general equipment, will likely bring the investment to $45,000 or more per mile.

This estimated pipe-line investment of $45,000 per mile approximates the investment per mile of the Natural Gas Pipe Line Company of America. The investment in the 893 miles of natural gas pipe line to Chicago, as presented in Table II, does not include cost of the field-gathering lines, the gasoline extraction plant, nor the initial compressor station. If the cost of the gasoline extraction plant were included in the summary, the investment per mile would be slightly short of $45,000.

[19] Hill, E. G., and Rhodes, G. I., "Long-Distance Transportation of Natural Gas," 11 *Natural Gas* 20-2 (October, 1930).

TABLE II. CONSTRUCTION COSTS OF THE NATURAL GAS PIPE LINE COMPANY OF AMERICA*

Item	Total Cost	Cost per Mile
Main line	$27,489,500	$30,787
Compressor stations	6,465,918	7,242
Interest during construction	2,569,098	2,877
Rights-of-way	1,325,145	1,484
Lands in fee	89,566	100
Telephone system	679,732	761
Marketing development	246,373	276
Other costs	278,714	312
Total	$39,123,046	$43,840

*Federal Trade Commission, *Public Utility Corporations*, *op. cit.*, No. 62, p. 405.

Gas Transmission Costs

Overhead costs, particularly interest on and depreciation of the fixed investment, bulk high in the total cost of long-distance transmission of natural gas. Like the cost characteristics of some other public utilities, some costs of gas transmission, as maintenance or supervision costs, are neither fixed absolutely nor do they vary with the amount of gas sold. Moreover, the proportion of fixed to variable costs may not be uniform among properties for several reasons. When a pipe-line company purchases its gas supply, the variable cost represented by the expenditure for gas will be higher in the eastern than in the western regions. Likewise, the longer the pipe line the smaller is the relative proportion of cost of gas purchased and some other variable expenses to total costs of operation. Moreover, if the pipe-line company produces its gas supply, the relation of fixed and variable expenses will be altered. Consequently, the relation between fixed and variable costs is, within certain limits, an individual one for each pipe-line company.

The depreciation of a pipe line is usually rapid because of soil corrosion.

When the line is weakened, leaks begin to develop and it becomes dangerous and wasteful to transmit gas at high pressures. It is generally believed that a natural gas pipe line has a useful life of about 20 years.[20] Therefore, on a straight-line basis of calculation, the yearly allowance for depreciation will range from 4 to 5% of the investment.[21] Because of the economic risk, particularly the danger of depletion of the gas supply, it seems fair to allow 8% annually as the rate of return on the investment. Two per cent of the investment seems an adequate sum for annual coverage of taxes and insurance, although 1% would probably be an ample allowance, for example, in southern states. The fixed portion of the maintenance charges will vary under much the same conditions that pipe-line investments vary. One per cent of the investment, however, seems an ample yearly allowance for fixed maintenance costs.

A summary of the annual costs which will be incurred, whether the pipe line is operated or not, in terms of percentages of pipe-line investment shows:

Rate of return	8%
Depreciation	5%
Taxes and insurance	2%
Maintenance	1%
Total	16%

As previously mentioned, other costs, such as administrative expenses, compressor-station superintendence, or labor, do not vary exactly with the volume of gas sold. Space and inadequate information will not, however, permit a determination of the extent to which these latter expenses are fixed.

Because of this high proportion of fixed costs, a more complete utilization of the capacity of a pipe line results in a lower per-unit cost of gas transmission. The majority of the recently constructed long-distance lines, however, have been utilizing usually less than 50% of their capacity.[22] The Natural Gas Pipe Line Company of America (the Chicago line), for example, used 46.5% of its capacity in 1932 and 40.3% in 1933. Two other long pipe lines utilized the following percentages of their capacity:[23]

Year	Southern Natural Gas Co.	Western Public Service Co.
1930	14.1%	17.9%
1931	40.7	22.9
1932	30.9	26.9
1933	37.6	29.0
1934	40.9	36.5

Use of about 50% of capacity would be a favorable basis of operation for most lines, since the demand for gas for house-heating and some commercial uses is discontinuous or seasonal. Promotional and off-peak rates, additional use of natural gas by industries, and improvement in general business conditions doubtless will increase the use of the investment in existing pipe lines.

The above approximation of annual fixed costs—16% of investment—may

[20] Biddison, P. M., "Economics of High Pressure Natural Gas Pipe Lines," 63 *Gas Age-Record* 103-7 (January 26, 1929); Gammon, W. E., "Pipe Line Valuation," 70 *Gas Age-Record* 1-3 (July 2, 1932); *Re Pacific Gas & Electric Co.*, 1 P.U.R. (N.S.) 1 (1934).

[21] Depreciation allowances seem to be inadequate for a number of the pipe-line companies studied. It is not uncommon for a company to allow 3% or less on the investment for depreciation. Apparently many new lines are not using any of the customary methods for calculating depreciation allowances, because the sums allowed for depreciation sometimes fluctuate widely from year to year.

[22] Of 11 lines studied in 1931, two lines operated at less than 20%, seven between 20 and 30%, two between 30 and 40%, and two exceeded 40% of their capacity. Nourse and Associates, *America's Capacity to Produce* (Washington: Brookings Institution, 1934), p. 100.

[23] These data were calculated from scattered sources in Moody's Investors Service, *op. cit.*, and Federal Trade Commission, *Public Utility Corporations*, *op. cit.*, Nos. 72-A, 77.

be stated with greater meaning in terms of the cost per MCF of gas sold in relation to the percentage of capacity employed (Table III). In this hypothesis an annual fixed cost of $3,600,000 would be incurred for a 500-mile line in which an investment of $45,000 per mile has been made. A daily capacity of 150,000,000 cubic feet of gas has been assumed.

TABLE III. THE RELATION OF THE LOAD FACTOR AND THE FIXED COSTS PER MCF OF GAS FOR A 500-MILE NATURAL GAS PIPE LINE

Percentage of Capacity Used	Yearly Fixed Costs (000 Omitted)	MCF of Gas Transported in One Year (000 Omitted)	Average Fixed Cost per MCF Transported (Cents)
100%	$3,600	54,000	6.7
75	3,600	40,000	8.9
60	3,600	32,000	11.1
50	3,600	27,000	13.3
33⅓	3,600	18,000	20.0
25	3,600	13,500	26.7
20	3,600	10,800	33.3

Moreover, fixed costs per MCF of gas transported tend to vary with length of the line. For example, the fixed costs per MCF indicated above will be approximately double in the case of a 1,000-mile line of similar construction. These costs, which are incurred even though no gas is sold, are obviously of great significance, and tend to limit pipe-line length. Then, of course, to obtain the total cost, other charges—such as wages, administrative and general expenses, and the cost of producing or purchasing gas—must be added to the above fixed cost. The cost of producing or purchasing gas varies from 4 to 8 cents per MCF in the Southwest to 15 to 20 cents per MCF in the Appalachian region. It has been estimated that it costs from 3 to 4 cents to transmit 1 MCF of gas each 100 miles in the Chicago line.[24] Similarly, the average gas transmission cost per MCF per 100 miles in lines of the Southern Natural Gas Company was 6.4 cents for the period 1929-34.[25]

Other Financial Considerations

Two additional factors are of vital importance in the operation of gas pipe lines. First, there must be an adequate reserve of natural gas available in the field from which the pipe line is extended. If a pipe line has a corporate affiliate which controls a large gas acreage, this danger is partially averted. Although gas production of the Appalachian fields has been waning, new fields have been found in eastern Kentucky. Assuming a gradual reduction of gas waste, the Panhandle and Hugoton fields—the Hugoton field in southwestern Kansas is relatively near the Panhandle field—on the basis of the 1935 rate of gas production will probably serve pipe lines now originating in that region for 30 to 50 years. Likewise, the Kettleman Hills field of California promises to last on the basis of present rate of gas production for another 40 to 50 years. The Monroe-Richland gas-producing pool, from which about ½ the gas reserve has been pro-

[24] *Oil and Gas Journal*, September 4, 1931, p. 38.

[25] Federal Trade Commission, *Public Utility Corporations*, *op. cit.*, No. 77, p. 639. The following is a summary of the average costs in cents experienced by the Southern Natural Gas Co. in transporting 1 MCF of gas 100 miles:

Item	1931	1932	1933	1934
Direct compressing expense	.24	.20	.27	.28
Direct transmission expense	.51	.49	.42	.41
Indirect operating expense	.49	.52	.41	.42
Taxes	.32	.36	.29	.34
Depreciation*	1.27	1.68	1.38	1.21
6% Return on investment	3.28	4.34	3.57	3.18
Total Transmission Cost	6.11	7.59	6.34	5.84
Cost of Gas per MCF	4.54	4.11	3.50	4.32

*Based on report by Ford, Bacon & Davis, Inc., rather than actual allowance.

duced, and many other pools doubtless will continue to produce gas during the life of the pipe lines which they serve. In addition, a pipe line must also anticipate payment of a gradually rising price per MCF of gas, whether it produces or purchases its gas, if the supply is to be obtained for a period of years from the same field. These and other considerations give rise to special problems in the regulation of gas utilities which will be discussed in other articles.

Second, a market for the gas must be assured. Some of these long-distance natural gas lines were not extended until long-term contracts had been negotiated to serve fuel to a number of industrial plants. Because of corporate affiliations, the sale of natural gas to former manufactured gas distributing companies may provide an assured market.

Financial Results

Financial difficulties have confronted several of the new natural gas pipe-line companies. The natural gas companies of the Tri-Utilities system—the Southern Natural Gas Corporation and Oklahoma Natural Gas Company—went into receivership when the Ohrstrom public utility system collapsed in 1931. Frank P. Parish's Panhandle-Eastern Pipe Line Company, judging from its unprofitability, was too ambitiously and too hastily planned. The Columbia Gas and Electric system extended financial assistance to the Panhandle-Eastern line in order that the line might be completed to Indiana.[26] Missouri-Kansas Pipe Line Company, the Parish company which controls Panhandle-Eastern and other gas pipe lines, is in the hands of receivers.

Southern Natural Gas and Panhandle-Eastern initially possessed financial structures with a ratio of bonds to stock of 3 to 1 and 15 to 1 respectively, thereby making the companies vulnerable to the effects of depression.[27] Nearly all other large pipe-line companies possess a much smaller bond-stock ratio. Western Public Service, for example, has a capital structure composed almost entirely of common stock. But few of these new pipe-line companies, with the exception of the Southern Counties Gas Company, have earned a reasonable return on common stock since they began operation, even though the reported earnings were exaggerated because of frequently inadequate annual depreciation charges.

The following percentages of net operating income (before interest and dividends have been deducted) to total assets indicate that some of the new natural gas lines have faced lean years:[28]

Company	1931 %	1932 %	1933 %	1934 %
Western P. S. Corp...	.84	1.28	1.09	1.36
S. Counties Gas Co...	4.90	4.80	5.11	6.23
N. Natural Gas Co...	.....	2.74	4.34	4.83
Panhandle-Eastern P. L. Co.....	.57	.35	1.14	.....
S. Natural Gas Corp.	3.47	3.49	3.94	2.71

Doubtless, a portion of the pipe-line companies' financial difficulties may be

[26] On January 29, 1936 a consent decree was issued by the U. S. District Court at Wilmington, Delaware which eliminates managerial domination of Panhandle-Eastern by the Columbia Gas & Electric system. Fifty per cent of the voting stock of Panhandle-Eastern was controlled by Columbia Oil & Gasoline which, in turn, was controlled by Columbia Gas & Electric through a voting trust. This decree will eliminate the avowed marketing hindrances fixed by Columbia Gas & Electric on Panhandle-Eastern while the latter has been attempting to develop a natural gas market in the Middle West (142 *Commercial and Financial Chronicle* 778 (February 1, 1936)).

[27] Recapitalization of Panhandle-Eastern is contemplated in 1936 (142 *Commercial and Financial Chronicle* 778 (February 1, 1936)).

[28] Moody's Investors Service, *Public Utilities*, 1929-35. Unfortunately, adequate income and balance sheet statements are not available for other important pipe-line companies.

attributed to influences of the depression. Many of the long-distance lines were extended on the basis of expected industrial sales, but that source of revenue has been limited by existing business conditions. Other lines, as the Panhandle-Eastern, were extended without the assurance of well-established markets which may be obtained gradually in the future. Likewise, this inadequate return on the investment in pipe lines reflects an insufficient utilization of the capacity of the lines. Unless the profitability of these pipe-line ventures is enhanced as general business conditions improve and as the capacity of these lines is more adequately utilized, little additional capital will be attracted to these projects. Within the next decade, however, it seems that additional expansion of natural gas pipe lines may be forecast; in the Middle West this conjecture encompasses particularly the expectation of natural gas service for St. Paul, Milwaukee, and many smaller cities of the area. Financial assistance from Columbia Gas & Electric permitted Panhandle-Eastern in July, 1936 to complete its gas line to Detroit. Texas Panhandle gas is piped over 1,200 miles to Detroit gas customers. The waning supply of gas in the Appalachian area, despite the recent Tioga and Eastern Kentucky gas field developments, will not permit much additional pipe-line construction in eastern states though there are large nearby markets for natural gas. The vast western and southwestern gas reserves, on the contrary, will surely prompt additional pipe-line construction in the central, southern, and western states.

Conclusion

Governmental control of the interstate business of natural gas pipe lines, though doubtless merited before 1927, has been made more imperative by the recent rapid growth of long-distance gas lines. Because the largest gas reserves are located in thinly populated areas from which 500- to 1,000-mile pipe lines must be built to reach large markets, the probable future construction of these pipe lines provides additional support for this regulation. In the absence of state commission control of interstate gas lines—and usually the United States Supreme Court has held that this problem is one for which federal regulation only will suffice—a pipe line may freely fix wholesale gas rates and service standards. Although the poor financial record of many new 500- and 1,000-mile gas lines does indicate a need for rate regulation, probable future enhancement of net operating income for these lines may warrant regulatory control.

A later article will consider the proposed federal statute in more detail, with some of the background of previous legislation and court interpretation on regulation of interstate shipments of natural gas. Equally evident from this analysis of long-distance gas transmission is the presence of many problems still within the domain of state regulatory bodies. A third article will deal with some of the more important of these issues.

Use of the Power of Eminent Domain in Slum Reclamation

By JOHN IHLDER and MAURICE V. BROOKS*

OUR cities are facing the most serious financial and social crisis in their history as a result of fundamental economic and social changes which leave large decadent areas. Assuming that we have the intelligence to deal with this crisis, there remains the question whether we have the necessary legal freedom of action. For it seems apparent that the action required is governmental action, and question has been raised as to whether, under our written constitutions, government has the power to do what is necessary.

We in Washington are particularly concerned with the problem in the District of Columbia. Superficially, conditions here differ from conditions in industrial cities, but essentially they do not differ. Our decadent areas, our slums and blighted neighborhoods are traceable to the same root causes as are theirs. While we are governed by Congress alone and are under the Federal Constitution alone[1] and while this not only simplifies our legal status but also, perhaps, gives our legislature a power over local affairs greater than that possessed by state legislatures, still our problem remains essentially that of other cities.

It is, of course, possible that, because of the peculiar government of the District of Columbia, the courts may decide that such an agency as The Alley Dwelling Authority has powers denied in certain of the states to either federal or state agencies.[2] Yet what we do must be sound economically, socially, and legally. If our proposals are sound in terms of present conditions, then we may hope that the courts will so interpret the Constitution as to give us the necessary freedom of action.

The saving grace of the Constitution is that, additional to the provision for formal amendment, its language permits of new interpretation as need arises.[3] This statement, despite its trite-

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[1] "The Congress shall have Power . . . To exercise exclusive legislation in all cases whatsoever, over such District" [the District of Columbia]. Federal Constitution, §8, item 17.

[2] *Shoemaker v. U. S.*, 147 U.S. 262, 13 Sup. Ct. 361 (1893), concerned land within the District of Columbia held properly subject to condemnation for a park. The Court stated that it was not called upon to consider whether the "alleged restriction" [to objects within the expressed . . . powers conferred by the Constitution] existed inasmuch as Congress is given exclusive legislative power over the seat of government.

Chapter 5, §100, Code of the District of Columbia provides for acquisition of land in the District of Columbia for use of the United States.

"Condemnation of land for the United States; proceedings by Attorney General in the Supreme Court. Whenever the head of any executive department or independent bureau or other officer of the United States, or any board or commission of the United States, hereinafter referred to as the acquiring authority, has been, or hereafter shall be, authorized by law to acquire real property in the District of Columbia for the construction of any public building or work, or for parks, parkways, public playgrounds, or for any other public purpose, such acquiring authority shall be, and hereby is, authorized to acquire the same in the name of the United States by condemnation under judicial process whenever in the opinion of such acquiring authority it is necessary or advantageous so to do, etc."

[3] "The notion of what is public use changes from time to time. Public use expands with the new needs created by the advance of civilization." (*State ex. rel. Twin City Building and Investment Co. v. Houghton*, 144 Minn. 1; 176 N. W. 159 (1919).)

"Courts are not, and perhaps ought not to be, free from the influence of the circumstances which surround a case and the consequences which may flow from a particular decision." Lewis, *Law of Eminent Domain*

(*Footnote 3 continued on p. 356*)

ness, bears repetition because there are those who refuse to recognize that the Constitution has the essential quality of flexibility, who would make it so rigid that adaptation to growth and development would be impossible and relief could be obtained only by constant revision or by discarding it entirely. Could these strict constructionists have had their way there would be no zoning regulation in the United States, for as recently as 1916 it was generally believed the Constitution required that every law must apply equally throughout any given political entity. It required years of painstaking presentation to assure interpretations that make possible laws applying equally not to every property but to every property of the same kind. Liberalizing interpretations such as these are required for the phrase "public use."

Definition of "Public Use"

As in the case of the "general welfare" clause, so in that of the words "public use," the Constitution fortunately attempts no definition—fortunately because the need for slum reclamation like that for swamp reclamation did not become evident until long after the Constitution was adopted.

As "public use" is the key to the right of eminent domain, this lack of definition, this freedom to re-interpret in accordance with need, is of vital importance to those who believe in the maintenance of constitutional procedure. This freedom of interpretation naturally has resulted in two schools: (1) that which holds "public use" might be expressed more clearly by the phrase "use by the public" and who, consequently, would limit its application to a use or right of use on the part of the public or some limited part of the public; and (2) that which believes "public use" is equivalent to public benefit, utility, or advantage.

The first interpretation has the advantage of definiteness. It leaves a court little discretion in deciding any case brought for review. But it has the disadvantage of inescapable inconsistency. For strict adherence to this interpretation would have deprived of their "public use" characteristic the sawmills and gristmills that from early colonial times utilized the power of eminent domain and whose right to this power has been upheld by the United States Supreme Court (*Head* v. *Amoskeag Manufacturing Company*, 113 U. S. 9 (1885)).[4]

The second interpretation has the disadvantage of indefiniteness. It leaves for the courts to determine what is a "public use."[5] But it has the advantage of fitting that determination to contemporary conditions.

The inconsistency of a narrow, rigid interpretation of "public use" (making it equivalent to "use by the public"),

(*Footnote 3 continued from p. 355*)
in the United States (Chicago: Callaghan & Co., 1909), 3rd ed., Vol. 1, pp. 544-5, §275 (178).

"That the land covered by this petition is to be used by a limited portion of the public is without question. The court holds, nevertheless, that the use here is a public use, i. e., to abolish disease breeding slums for the benefit of all the people of the state, and to furnish 'a limited portion of the public' (readily ascertainable) living quarters which will prevent disease." (Supreme Court of the State of New York, Special Term, Part III, April 12, 1935.)

[4] Nichols, *Eminent Domain* (Albany, 1917), 2nd ed., pp. 128 et seq. Also "many courts have recognized the folly of attempting to lay down any hard and fast rule, and, while repudiating the dangerous doctrine that any enterprise which indirectly promotes the public welfare is necessarily a public use, have not attempted to confine the exercise of eminent domain to cases in which the public will have the right to use the property sought to be taken." (*Ibid.*, at 132.)

[5] "While the legislature can not make a use public by declaring it so, yet its declaration will be respected by the courts unless it is palpably without reasonable foundation. And the use will be scrutinized less closely when the property is vested in the state or some public agency than when it is vested in a private corporation. (Lewis, *op. cit.*, p. 499, §251 (138).)

with contemporary necessities was evident from the beginning of our state and federal constitutions, but the issue was not submitted to court decision until 1832 when in both Massachusetts and New Jersey the courts adopted a broader view.[6] As a result, not only in Massachusetts and New Jersey, but also in Connecticut, New Hampshire, and Indiana "the taking of land for water power for running any kind of mills or machinery is held to be for public use upon principle."[7] The constitutionality of acts for this purpose has been upheld in Iowa, Kansas, Maine, Minnesota, Nebraska and Wisconsin, but has been denied in Alabama, Georgia, Illinois, Michigan, New York, Vermont, Virginia, and West Virginia.[8]

There is then no agreement among the states and it may be assumed that court decisions were affected to some degree by varying local conditions.

The Effect of Changing Conditions

Today, because of changes that are affecting fundamentally our economic and social conditions, and, as a sequel are affecting our economic and social philosophy and our economic and social practices, the interpretation of the words "public use" and its application to the solution of serious urban problems have become of first importance. Because of the decreasing rate of population growth, of the probability of a static population within a few years, of the coincident wider distribution of urban population as a result of distribution of centers of employment (caused in part by substitution of electric power for steam), and of improved means of transportation, the growth and development of our cities and towns have been materially altered. In some, the total population is decreasing. In practically all the density of population is decreasing. At the same time property values in many of the older sections are declining largely because of shifts of population. Consequently traditional assumptions as to real property are no longer valid. Traditional practices do not produce the former results. One of the consequences of these changed conditions is the fact of decadent urban areas (slums, blighted districts) from which private enterprise as a constructive force has retired. These decadent areas are so numerous and so large, the community expenditures they necessitate are so great, that they have become a threat to municipal solvency.[9] So, if only as a matter of self-preservation, the cities must rid themselves of their decadent areas and must substitute areas that are sound and wholesome. For, in addition to the financial burden they impose, the decadent areas are focal points of disease,[10] vice, delinquency, and dependency. Their physical condition makes them fertile breeding grounds for all that negatives the public welfare. Therefore, converting their sites to uses that will serve the public interest would be a "public use" irrespective of the

[6] *Boston and Roxbury Mill Corporation v. Newman*, 12 Pick. 467, 476 (1832); *Scudder v. Trenton Del. Falls Co.*, 1 N. J. Eq. 694 (1832).

[7] Lewis, *op. cit.*, Vol. 1, pp. 548-51, §276 (179).

[8] *Ibid.*

[9] See "Rent and Housing Conditions in the District of Columbia," Senate Document No. 125, Part 2, 1934, Chapters II and III. See, "An Analysis of a Slum Area in Cleveland," prepared by Howard Whipple Green and others for the Cleveland Metropolitan Housing Authority (March 27, 1934).

[10] "In such cases it is of no consequence whether the same result could have been reached without the exercise of any franchise from the government, and there is no requirement of 'use by the public' in the sense that the individual members of the public must have the right to use the land so taken. The use is by the public through its officers or agents, or by its enjoyment of greater safety, health, and comfort, and eminent domain may unquestionably be employed for such purposes, although the public is to be rigorously excluded from the land taken." (Nichols, *op. cit.*, c. 44.)

particular use to which the area may subsequently be put.[11]

The Alley Dwelling Act

The Alley Dwelling Act[12] is in harmony with this principle. For more than 70 years there has been general and official recognition of the fact that the inhabited alleys of the District are community liabilities, focal points of disease,[13] vice, crime, and dependency. During that long period many efforts have been made to redeem them.[14] The worst of the alley dwellings have been demolished. The alleys themselves have been paved, and sewers, water mains, street lights have been extended through them. Yet they have remained as before, centers of disease, vice, crime, and dependency. Then it was recognized that the trouble lay in the fact that they constitute hidden communities and that such hidden communities are hospitable to that which is anti-social.

So in 1914 the Congress enacted a law decreeing that all alley dwellings must be vacated as dwellings within four years. On its attempt to enforce this law[15] the government was defeated. Since then the law has been inoperative. Even the demolition, under the police power, of individual insanitary buildings has been checked.[16]

There is question as to the wisdom of merely vacating property, of making no provision for a constructive use. Recognizing this, the Alley Dwelling Act of 1934, having the same purpose as had preceding efforts—to safeguard public health, safety, and welfare—provides for taking over the property (which is clearly described in the law) by a governmental agency, its replanning and redevelopment so that it may serve a purpose that is in the public interest, and its final disposition in accordance with that purpose.[17] The

[11] When a fee simple estate is taken for public use, it may be either absolute or qualified. If absolute, then no individual has any interest in the land or its use, and it may be devoted to any purpose in the discretion of the legislature, or even sold to private parties. (Lewis, *op. cit.*, Vol. 1, p. 419, §211 (140).)

[12] Public, No. 307, 73rd Congress (1934).

[13] "It is uniformly conceded that the government of any sovereign state possesses the power to take for use or to take and destroy private property in behalf of the public health and safety, upon payment of just compensation." (Nichols, *op. cit.*, Vol. 1, p. 160.)

[14] "It is true that these restrictive measures have been somewhat beneficial, but history and experience have shown that they were inadequate as a cure or to combat successfully the evils of the conditions they sought to remedy. Something constructive was essential. For that purpose the Legislature has passed this law authorizing New York City Housing Authority to condemn land for government low-rental housing.] Great respect must be shown the deliberate findings of the Legislature of this state as to the conditions and the necessary remedy, particularly where all other remedies have failed. The need for this legislation is present." (Decision of Mr. Justice Charles B. McLaughlin, Supreme Court, Special term, Part III, New York County, April 12, 1935.)

[15] *District of Columbia v. Nash*, 57 Appeals D. C. 269 (1927). The information filed therein charged the defendant with using as a dwelling, or residence, or place of abode, a certain building in Bassett's Alley, said alley being less than 30 feet wide, and the building not supplied with gas, water, and electric lights.

The statute upon which this prosecution was based did not denounce this as a crime, but to the contrary merely prohibited use of a dwelling in an alley as defined, if the alley did not have water, gas, and light connections.

[16] In the case of *Metzger v. Markham*, the Court of Appeals (Jan. 3, 1911) reversed the case for the following reason: Metzger was the owner of a house that had been condemned because it was in an insanitary condition and a menace to the health and lives of the inhabitants. He did not go into court on the proposition that the law was unconstitutional or that Congress had delegated judicial power to a commission, but rather on the question of damages and the Court of Appeals ruled that the lower Court should have appointed a board or a commission to award him damages by reason of the condemnation of the house.

[17] "They [the appellants] urge that the extent of the benefits which will be derived by private business organizations from the reservoir, its capacity and the point of regulation, together with the activity of private beneficiaries toward the creation of the district, show that power development is the primary purpose which the board had in view. Lastly they proclaim that conditions affecting public welfare, including public health and safety, will be improved only to a comparatively minor extent. With this argument we can not

(*Footnote 17 continued on p. 359*)

Act provides for just compensation to private owners whose property is taken under the power of eminent domain rather than under the police power.

Long experience prompted the Alley Dwelling Act to utilize the power of eminent domain instead of the police power. The Act is applicable only to squares that contain inhabited alleys because during the years of agitation a clear understanding had developed concerning the social and economic menace of the inhabited alley. But, within this territorial limitation, the Act gives broad powers to the Authority that administers it. The Authority is authorized:

"To purchase or acquire by condemnation or gift, any land, buildings or structures, or any interest therein, situated in or adjacent to any inhabited alley in the District of Columbia, and such other land, buildings or structures, or any interest therein, within any square containing an inhabited alley as he (it) may determine to be necessary for the replatting and improvement of said square pursuant to the provisions of this Act.

"To replat any land acquired under this Act; to pave or repave any street or alley thereon; to construct sewers and water mains therein; to install street lights thereon; to demolish, move, or alter any buildings or structures situated thereon and erect such buildings or structures thereon as deemed advisable: Provided, however, That the same shall be done and performed in accordance with the laws and municipal regulations of the District of Columbia applicable thereto.

"To lease, rent, maintain, equip, manage, exchange, sell, or convey any such lands, buildings, or structures upon such terms and conditions as he (it) may determine: Provided, That if any such land is required for the purposes of the government of the District of Columbia such land may be transferred to the said government upon payment to the Authority of the reasonable value thereof; and

"To aid in providing, equipping, managing, and maintaining houses and other buildings, improvements, and general community utilities on the property acquired under the provisions of this Act, by loans, upon such terms and conditions as he (it) may determine, to limited dividend corporations whose dividends do not exceed 6 per centum per annum, or to home owners to enable such corporations or home owners to acquire and develop sites on the property: Provided, however, That no loan shall be made at a lower rate of interest than 5 per centum per annum, and that all such loans shall be secured by reserving a first lien on the property involved for the benefit of the United States."

Lacking any of these powers the Authority would be unable to carry out the purposes of the Act. Attempts have been made to limit the power of acquisition to alley properties. If these had been successful, the Authority could do no more than bail out present alley landlords. For many alley properties are useless for any other than their present purpose if they cannot be united to some street property and the whole redeveloped as a unit. The power to replat the land is obviously necessary, as many alley holdings are in tiny parcels. One of the services rendered by the Authority is in assembling these little parcels, many of which are in the hands of estates, others tax delinquent, some without known or recorded ownership.

The power to lease, rent, maintain, equip, manage, exchange, sell, or convey is equally essential. Otherwise the land would, in many cases, lie vacant and unused, become again a community liability though in another form. Each

(Footnote 17 continued from p. 358)

agree. Public health and safety are superior to other considerations, and their promotion in the measure shown in this case is sufficient justification for regulating the flow of the waters in this district. Other interests have been benefited by the promotion of this primary purpose. That does not matter." (*Board of Hudson River Regulating District v. Fonda, J. and G. R. Co. et al.*, 249 N. Y. 445; 164 N. E. 541, Court of Appeals of New York (1928). Opinion by O'Brien, J.

alley square is a separate problem. How it should be redeveloped depends largely upon the character of its neighborhood. How it should be disposed of, how and by whom owned and managed, depend largely upon the character of its development. To prevent its sale, when selling would aid in the proper development of its square or neighborhood, would be against the public interest. To compel its sale, when the evident result would be a new deterioration, would be equally against the public interest. Again, the conditions of the lease or sale must be governed by conditions. So far the Authority has made profits on its acquisitions. But it is conceivable, the probability has been admitted from the beginning, that some of its properties will be held, or will be disposed of at a loss. For it is to be remembered that the principal purpose of the Authority is to rid the District of Columbia of its hidden alley communities—in the words of the Act, "to provide for the discontinuance of the use as dwellings of buildings situated in alleys and to eliminate the hidden communities in inhabited alleys." The intent of the Authority is to accomplish this purpose and at the end to have either cash or assets at least equal to the appropriation with which it is working. But what it makes on some projects it may lose on others.[18]

Summary

The existence of decadent areas (slums and blighted neighborhoods) is an economic and social handicap of major importance to our municipalities. Attempts to deal with this situation under the police power have proved ineffective. There remains, then, use of the power of eminent domain. This power may be exercised in furtherance of a public use. It is a public use to reclaim a slum or blighted area that is proving a disastrous economic and social liability to its community. What use may be made of the property after fee simple has been secured by the reclamation agency is of no significance, provided that use tends to promote the public welfare.

[18] A release of June 24, 1936, entitled "Accomplishments of the Alley Dwelling Authority," sets forth further details regarding the policy of the Authority, the extent of its purchases to date, the uses to which this property has been put, and some data on the financial position and prospects of the Authority.

Severance Damages Relating to Electric Utilities

By FRANK E. KRUESI and EDWIN VENNARD*

I. Introduction

A. General

IN SEVERAL states, municipalities have the right to purchase through condemnation proceedings the utility property of the private company serving the community.[1] If the private company has an isolated power plant serving the community and does not have transmission lines connecting with other properties, determination of the compensation to be paid the utility company is relatively simple in that it relates primarily to finding the fair value of the property to be actually taken.

In most instances, however, communities are served by means of a transmission line system, by which the company serves a relatively large number of communities from a few power plants, all interconnected by means of transmission lines. It is also common practice for a private company to have one general office and a few district offices to operate the whole system. Under these conditions all communities served, together with the transmission system and generating plants, become an organized unit within which all parts are interdependent, and the plan of operation must be carefully adjusted to secure the greatest overall economy. When one community elects to sever itself from such a system, much more is involved than merely the purchase of the particular distribution system located within the corporate limits of that community.

Loss sustained by the company resulting from damage to the company and to the balance of its interconnected system, through severance of a part of the business only, is known as severance damage. The severance damages referred to in many of the condemnation and purchase cases that have come before commissions and courts relate to repairing the severed transmission and distribution lines of the company. It is not the purpose of this discussion to deal with this "mending of dead ends." The purpose is to deal primarily with the damage to the property not taken and damage to the company's operations, and to show that severance damages constitute an actual and substantial loss, and by reference to specific cases to show that such loss has been recognized by commissions and courts and that compensation has been allowed. The conditions upon which claims for severance damages have been based are analyzed to show the soundness of some of these claims and also to show wherein some of the claims are faulty. To illustrate the conditions involved in such claims for severance damages, a hypothetical electric utility company is set up and the severance of a specific part of its property is assumed. The correctness of the method for determining adequate severance damages as developed in the analysis is then tested by comput-

* President, Central Power Co., Grand Island, Neb. and In Charge of Rates, Middle West Service Co., Chicago, respectively.

[1] In some jurisdictions, notably Wisconsin, the principle of contract rather than the principle of condemnation has been held to enter into the question of the acquisition of the property of a private company by a municipality. (See *Connell v. Kaukauna*, 164 Wis. 471 (1871) and more especially the recent case of *Wis. P. & L. Co. v. Public Service Commission*, 219 Wis. 104 (1935).)

ing the damages to this hypothetical company and noting whether the company's financial position after severance is fully restored by receipt of the amount so computed. The subject is treated from an engineering standpoint, and the commission or court cases cited have been selected to illustrate the points developed in the analysis.

B. Hypothetical Case

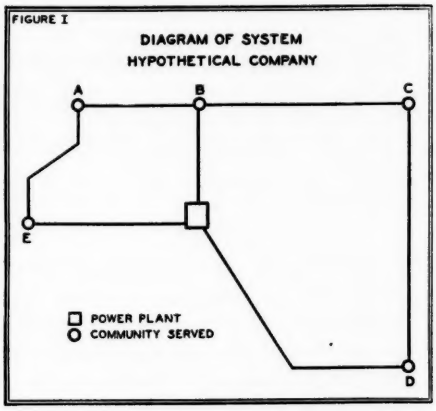
Specific conditions are assumed for a hypothetical electric utility company for the sake of simplifying the problem as much as possible.

Figure I is a diagram of this hypothetical utility system, serving five communities from one power plant, with investment and operating conditions as follows:

Total system investment	$10,000,000
Distribution investment	$5,000,000
Power pool investment (power plant, transmission lines, and substations)	$5,000,000
Total annual gross operating revenue	$2,000,000
Total kilowatt capacity of power pool	25,000
Power pool investment per kilowatt of capacity	$200
System peak demand in kilowatts	15,000
Power pool investment per kilowatt of system peak demand	$333
Operating load factor of system	50%
Kilowatt-hours generated per year	65,000,000
Total operating expense, including taxes	$1,000,000
Operating ratio	50%
Balance for interest and depreciation	$1,000,000
Per cent earned on investment for interest and depreciation	10%
Per cent of depreciation	3%
Per cent return on investment	7%

The system peak demand of 15,000 kws. involves some diversity among the maximum demands at the substations serving the different towns. The sum of the local substation maximum demands is 17,500 kws., and the diversity factor is therefore:

FIGURE I



$$\frac{17,500}{15,000} = 1.166$$

Prior to building the transmission-line system, Communities C and D had no electric service; Community E had part-time service. The transmission system has enabled all communities to have adequate, reliable, full-time service. The transmission system, with the single power plant, was built because it was more economical than the alternate method of providing small, isolated power plants in each community. Community A has a load factor of 42%; the system has a load factor of 50%. The diversity of loads between communities causes this increase in load factor, thereby reducing the plant capacity and stand-by necessary for each community. Interconnection of transmission lines provides two- or three-way service to each community, thus reducing the hazard of interruptions to service. The system as an organized unit has been well-planned and constructed, and the plan of operation has been correctly adjusted to secure the greatest economy and lowest-cost service to all the communities.

The following assumptions are made as to Community A, which desires to sever its connection with the balance of the system:

Distribution investment	$ 1,000,000
Total annual gross operating revenue	$400,000
Kilowatt-hours available for sale per year	13,000,000
Operating load factor	42%
Kilowatt demand	3,500
Kilowatt of system peak chargeable to Community A is the maximum demand at the local substation divided by the diversity factor of the total system load	$\frac{3,500}{1.166} = 3,000$
Portion of power pool investment chargeable to Community A: $\left(\frac{3,000}{15,000} \times 5,000,000\right)$	$1,000,000
Operating ratio, taking into account the percentage of general office and overhead expense chargeable to Community A	50%

By charging 3,000 kws. against Community A, which has a local maximum demand of 3,500 kws., this community is given the benefit of the combined system operation whereby a smaller power plant capacity is needed to serve five towns on an interconnected system than if each were served by an individual plant.

Community A has received the benefits accruing from its combination with the other communities. Its ratepayers have therefore incurred the responsibility of considering the rights of ratepayers in other communities who have contributed to those benefits. When it elects to purchase the particular part of the system which happens to lie within its own corporate limits and thus sever its service from that of the interconnected system, the rights of all other ratepayers on the system are directly involved, as reflected in the ability of the company to continue to supply the same quality of service at the same cost.

The problem of determining the just compensation to be paid the company by Community A may be generally divided into three parts:

1. Value of property to be actually taken;
2. Cost of repairing severed portion of company's transmission lines;
3. Severance damages, or damages to property not taken.

C. Value of Property Actually to be Taken

The value of the property to be taken is readily obtainable by accepted methods of appraisal in which consideration is given to historical cost, prudent investment, cost of reproduction new, depreciated or present value, and to recognized overheads, such as legal expenses during construction, engineering and supervision, and "going concern" value.

D. Cost of Repairing Severed Transmission Lines

In like manner, the cost of repairing the severed portion of transmission lines can be determined without particular difficulty. This may be composed of the cost of building a transmission line outside the corporate limits of Community A to take the place of the line located within the municipality. This may also include the cost to the company of building lines necessary to supply rural or other customers served from the main distribution system. This service to rural customers is of increasing importance as a result of the stress now being placed on rural electrification. The municipality may not be allowed by law to extend service beyond the corporate limits or may not desire to do so, because of the relatively lean territory in rural sections. In some cases, these costs have been termed "severance damages." These are, in a sense,

severance damages, but that is not the sense in which the term is used here. This discussion will be limited to severance damages in the sense of "damage to property not taken."

II. Severance Damages, or Damages to Property Not Taken

When Community A elects to acquire from the company the distribution system within the city limits, it at the same time proposes to leave to the company the rest of its property, including (1) the entire generating and transmission system, part of which has been built to supply Community A, and (2) the entire operating organization planned and adjusted for economical supply of service to all the communities. These severance damages, or losses sustained by the company in the remainder of its system when such a part is removed,[2] are usually difficult to determine, but the losses are real and frequently represent a substantial amount. The mere fact that it is difficult to determine the amount of damages should not result in a failure to recognize that they exist and are due for just compensation.

When this problem presents itself, the two principal questions involved are:

A. Should severance damages be allowed?
B. How should severance damages be determined?

A. Should Severance Damages Be Allowed?

A study of the effect on the hypothetical company will illustrate the damage which will result if Community A purchases the distribution system, and thus deprives the company of its gross revenue in this community, without consideration of the fixed power pool investment and general office expense.

The following figures illustrate the condition of the company after severance of Community A, assuming no allowance for severance damages:

Total system investment (less Community A distribution lines)	$ 9,000,000
Total annual gross operating revenue (less Community A revenue)	$1,600,000
Kilowatt-hours generated per year (less Community A kilowatt-hours)	52,000,000
Operating load factor of system*	48%
System peak demand in kilowatts	12,400
Total operating expense including taxes†	$900,000
Operating ratio	56%
Balance for interest and depreciation	$700,000
Per cent earned on investment for interest and depreciation	7.80%
Per cent for depreciation	3.00%
Per cent return on investment	4.80%

* This assumes that Community A will cause a decrease in the company's system operating load factor.

† Operating expenses saved by the company through elimination of its business in Community A will not be in proportion to the operating ratio, since general office and district office expenses are more or less fixed. The expenses eliminated will be approximately 25% of the gross income (25% × $400,000 = $100,000).

In other words, the company's net return on its remaining investment has been reduced from 7% to 4.8% by reason of the purchase, by Community A, of the local distribution system and its severance from the company's interconnected system. If the company had been allowed 7% return on its investment before severance of its property, it is reasonable to assume that it should be allowed 7% return on its investment

[2] Analogy is frequently drawn between compensation due a utility company on account of the purchase of a part of its property by a municipality and the compensation due a land owner for the taking of a part of his property for a public right-of-way. In such cases it has been common practice to consider as part of the compensation due the owner a sum to cover reduction in value of the property remaining after the taking. (See *San Francisco A. & S. R. Co. v. Caldwell*, 31 Cal. 368 (1866); *Grand Rapids Booming Co. v. Jarvis*, 30 Mich. 308 (1874); *Eachus v. Los Angeles Consol. Elec. Ry. Co.*, 103 Cal. 614 (1894); *Krier v. Milwaukee Northern R. Co.*, 139 Wis. 207 (1909); *Bigelow v. West Wisconsin Ry. Co.*, 27 Wis. 478 (1871); *Parks v. W.C.R. Co.*, 33 Wis. 413 (1873).

after severance. To make the adjustment, it would be necessary for the company to raise its rates in other communities served. If it should not raise its rates, certainly this loss in net income would make rate reductions less likely in other communities and so, in any event, the ratepayers of the other communities pay for the action of Community A in acquiring the company's property.

This damage to the company may be divided into two general classifications:

1. Damage to the company's generating and transmission equipment which had previously been chargeable to the community severing its connections by reason of the fact that such property will be rendered less used, useful, and profitable until an equivalent load is recovered.
2. Damage to the company's generating and transmission equipment which has been chargeable to the territory not taken as well as the distribution systems in that territory by reason of the fact that such property is rendered less profitable and therefore less valuable until such time as complete recovery is realized, and perhaps indefinitely.

This second damage results from two possible and probable conditions:

a. The severance will probably cause an increase in the company's operating ratio by reason of the fixed expense in general office and district office, which cannot be entirely eliminated when part of the system is eliminated.

b. The severance will probably (although it may not) cause a decrease in the company's system load factor by reason of the change in diversity. An example of this will illustrate: It is generally recognized that the lighting load of a company enables lower power rates than would be possible if there were no lighting business; conversely, the company's power load enables lower lighting rates than would be possible otherwise. This element of diversity is an important one in rate-making. In all probability the severance of part of the company's system will upset this diversity, thereby making it less remunerative for the company to supply its remaining customers at existing rates by reason of the increased investment per kilowatt of demand.

This second damage to the company results in an increased cost to the company for each kilowatt-hour sold to its remaining customers. A city may claim that it is not legally responsible for this increased operating cost, and that the company has recourse to the commission and the courts for increased rates, if necessary. The legal questions will depend on the statutes in the particular states involved, but the point is: There is damage to the company both as to Item 1 and as to Item 2 and, if the company is to obtain just compensation, all factors entering into the damage should be taken into account.

Severance damages may be more apparent if consideration is given to the ultimate result should all cities exercise the right to purchase distribution systems without consideration of damage to the company's property not taken. If it is right for Community A to exercise its powers to acquire its local distribution system, in like manner Communities B, C, D, and E have the same right. If all such communities should purchase the distribution systems only, the company would be left with its power plant and transmission lines (representing an investment over $5,000,000) but without any customers, although this investment was made for the purpose of serving its customers and generally under the jurisdiction and with the sanction of the public service commission. While not an element of loss to the company, the other communities also suffer by reason of the increased tax burden in such communities caused by transfer of property in Community A to the tax-exempt class.

City Agrees to Purchase Energy Wholesale. It is sometimes argued, especially

by cities acquiring distribution systems, that purchase of power and energy at wholesale from the company eliminates severance damages in that, by so doing, the company is relieved of the idle capacity. This is not true for a number of reasons.

The wholesale business does not have the same permanence and reliability that characterizes retail business and, even under a long-term contract, there is a greater element of risk in wholesale business. The city may agree, at the time of acquisition, to purchase energy from the company at wholesale and later find that it cannot continue the purchase. Just compensation for damages must be determined from the facts existing at the time of taking,[3] rather than from what the taker offers to do in the future.[4]

The rule in eminent domain cases is that the damages cannot be reduced or mitigated by any consideration of future advantage to the owner which the condemner is not under any obligation to concede; and evidence based on such claim and advantage is inadmissible.[5]

The building of a unit company, such as the hypothetical case, has economic advantages that may be reflected in the company's rate structure, but such acquisition often requires that the company pay a relatively high price for some of the local distribution systems. The situation is not unlike that of a block of city lots, owned by different people, as a site for a manufacturing plant. When it becomes necessary that all blocks be placed under a single ownership, a relatively high price may be necessary for the purchase of some of the blocks; yet the value of all lots under a single ownership is greater than the aggregate of the value of separate lots under various ownerships.

If the company is required to pay a relatively high price for a local distribution system, it does so in anticipation of its ability to build the retail business to a point where the price would be justified by the revenue. Municipalities are, as a rule, less aggressive in building retail load. A change from retail distribution to wholesale business eliminates the company's load-building possibilities. As a consequence, the earning power of the property is reduced and a proportionate loss in property value is imposed upon the company.

Even if the company does not suffer from temporary, idle capacity, it will still be damaged in its operations in that the company's expense will not decrease in proportion to its gross income. The company's gross income at wholesale may be as low as ⅓ or ¼ of the retail business. The company's operating organization is set up for retail business. It would not be practical for the company to reduce its various departments, such as operating, engineering, purchasing, new business, and so on, in proportion to its loss in retail business. This continued expense will result in a decrease in net earnings by reason of the change from retail to wholesale business in one community. Either the ratepayers in the other communities or the company's security holders, or both, must suffer.

An examination of the hypothetical case will illustrate this operating damage:

Average rate per kilowatt-hour before severance ($2,000,000 ÷ 65,000,000)	3.08¢

[3] *Driver v. W.U.R. Co.*, 32 Wis. 569 (1873); *Aspinwall v. C. & N.W. Ry. Co.*, 41 Wis. 474 (1877); *Lyon v. G.B. & M.R. Co.*, 42 Wis. 538 (1877).

[4] See *Puget Sound P. & L. Co. v. Puyallup*, 51 Fed. (2d) 696, 697 (1931).

[5] 20 C.J., pp. 766, *et seq.*, ¶ 1161; see also *Boston Chamber of Commerce v. Boston*, 217 U.S. 189 at 195 (1910) and *U.S. v. Chandler-Dunbar Water Pr. Co.*, 229 U.S. 53 (1913).

Assumed average wholesale rate to Community A (3,500 kws. at 42% load factor)	1.30¢
Gross income to company from wholesale business in Community A (1.3c×13,000,000 kilowatt-hours)	$169,000
Gross income to company after severance, and including the wholesale gross income to Community A	$1,769,000
Total operating expense, including taxes*	$965,000
Balance for interest and depreciation	$804,000
Per cent on investment for interest and depreciation	8.93%
Per cent for depreciation	3.00%
Per cent return on investment	5.93%

*This assumes that the company will only save $35,000, representing the local retail operating expense of Community A. When Community A was assumed to be entirely severed, the saving in operating expense was $100,000, representing the $35,000 local expense plus $65,000 energy production cost. This is a production cost of five mills.

In other words, although the city purchases energy wholesale from the company, the company suffers a reduction in its net return from 7% to 5.93%.

B. How Should Severance Damages Be Determined?

So many factors enter into a determination of severance damages that it is difficult to place an actual value upon them. At best the damage is an estimate. Various methods and theories have been advanced in the cases that have come before commissions, probably the most important being before the California Commission.[6] The great differences that have existed in the estimates of the various interested parties give some indication of the difficulty of arriving at a just and reasonable amount. In the case of the *City of Los Angeles* v. *Southern California Edison Company*,[7] before the California Railroad Commission in 1916, both parties agreed that severance damages should be allowed; yet the final claim of the Edison Company for severance damages was $10,706,236, while the City contended that the maximum allowance which could properly be made was $414,035. In this case the Company claimed a present value of physical property to be taken by the City of $4,200,000 (exclusive of overheads).[8]

Table I summarizes some of the severance damages claimed by companies and the relation to the companies' claims as to value of the property. It was the experience of the companies presenting these estimates that the magnitude of estimated damages in comparison with value of physical property taken appeared so high as to cast doubt on their entire case. The element of risk entering into any business enterprise had not been taken into account. For a time there will result a loss to the company but only until such time as new business is secured equivalent in amount and load factor to the business that has been taken from it.[8a]

TABLE I. SUMMARY OF TYPICAL CLAIMS FOR SEVERANCE DAMAGES

Case	Value of Physical Property To Be Taken, Including Overheads Company Claims	Severance Damage Company Claims
City of Los Angeles v. *So. California Edison Co.* (1916)	$ 4,750,000	$10,706,236
San Francisco v. *Pacific G. & E. Co.*	34,621,644	27,236,114
St. Paul, Nebr., v. *Central Power Co.*	44,974	165,000
Marion, Wisconsin, v. *Wisconsin P. & L. Co.*	34,651	50,559

Two distinct theories of arriving at

[6] See *Eachus v. Los Angeles Consol. Elec. Ry. Co.*, *supra* n. 2; *Re Los Angeles*, P.U.R. 1916 F 593; *Re Los Angeles*, P.U.R. 1929 C 389; *San Francisco v. Pacific G. & E. Co.*, P.U.R. 1929 E 529; *Santa Monica*, 7 Cal. R.C.R. 463; *San Diego*, 7 Cal. R.C.R. 305.

[7] *Re Los Angeles*, P.U.R. 1916 F 593 at 613, 614.

[8] See also *San Francisco v. Pacific G. & E. Co.*, *supra* n. 6 at 550-2.

[8a] At the end of June, 1936 there appeared in England the report of the McGowan Committee on Electricity

(*Footnote 8a continued on page 368*)

just compensation have been presented in cases where a municipality has acquired, from a utility, certain land, property, and rights. The first theory is that the value of a utility property depends upon, and should be measured by, its income. The estimated net revenue of the property during the first year after the date of valuation is capitalized at the average yield of money invested in the company's securities outstanding at market prices at the date of filing the application. In other words, if the average yield of the money invested in the company is 7%, the net annual revenue, from property to be acquired, capitalized at 7%, is a measure of property value. The second method provides for a more detailed determination of just compensation, involving the present fair value of the property taken and an estimate of the damage to the property not taken.

Income Theory. The income theory has been advanced in a number of cases, particularly before the California Commission.[9] Concerning this theory the Commission concluded that as a measure of value it was too unstable and indefinite and consequently should not be used.[10]

Itemized Damages. The second method, providing for a more detailed determination of just compensation, has been used by a number of companies. Some claims under the second method have not met with favor on the part of regulatory bodies for reasons worthy of review. Methods that have been thought unreasonable will first be discussed, followed by a method that is thought to be reasonable.

The following list shows the questionable items and factors that have been used, or may be used, as contributing toward severance damages:

1. Investment in power pool made idle by severance.
2. Investment in power plant to supply community purchasing distribution system.
3. Capitalization of possible future earnings.
4. Capitalization of new business expense necessary to obtain new load.
5. Reduced employees' efficiency.

1. Investment in Power Pool Made Idle by Severance. When a community, such as A in the hypothetical case, acquires a local distribution system, a portion of the power pool of the company is made idle by reason of severance. The first impulse has apparently been to determine the investment in the power pool thus made idle and to name this as part of the severance damage. In the example, for instance, Community A has a kilowatt-demand of 3,500 kws., with 3,000 kws. effective in producing the system peak demand on the company's power pool. The company's total investment in the power pool is $333 per kilowatt of system peak demand. On this basis, the investment in the power pool, chargeable to Community A, is $1,000,000 (3,000 x $333). This is as much as the entire cost of the distribution system acquired by the city. Here the city is requested to purchase from the company something that the city cannot receive. It is true that this investment was made to serve the particular city, but it does not necessarily follow that a company will be unable to use this investment for other purposes. This is particularly true in view of the expanding nature of the

(Footnote 8a continued from page 367)
Distribution. Consolidations in England are proposed to be compulsory as to properties selling less than 10,000,000 kwhs. annually. In order that compulsory sales shall not be unfair to owners, the plan provides that the owners be paid capital cost less depreciation, plus severance damages, if any, plus loss of future profits under the existing grant.

[9] *Los Angeles v. So. Cal. Edison Co.*, P.U.R. 1929 C 389 at 393; *San Francisco v. Pacific G. & E. Co.*, P.U.R. 1929 E 529 at 534.

[10] See also the Puget Sound case, *supra* n. 4.

utility business in its present stage. For these reasons this method of determining a part of the severance damages has not been allowed in any of the cases reviewed.

2. Investment in Power Plant to Supply Community Purchasing Distribution System. This method is based on the investment in a local power plant that would have to be provided to supply the particular community. Community A, for instance, has a kilowatt-demand of 3,500 kws. Considering 40% stand-by, this would require a power plant of 4,900 kws.; at an investment cost of $150 per kilowatt of capacity, this would require an investment of $735,000. It is argued by proponents of this method that the company is entitled to receive damages in this amount, as it has already invested in power plant capacity to supply the city, and this represents the best means the city can employ in duplicating that capacity. Obviously this has met with disfavor in that, as in the case above, the city is, in effect, purchasing a power plant which it does not receive. It is paying the company outright for a certain block of capacity that may be, and probably will be, used for other purposes.

3. Capitalization of Possible Future Earnings. Although there has been a strong contention in some of the principal cases for payment of severance damages on this basis, it has not been allowed because of the uncertainties of the method and because it assumes a constant rate of return and no risk.

4. Capitalization of New Business Expense Necessary to Obtain New Load. This method has probably not been used, but may have some merit. Electric utilities have not yet a high degree of load saturation in some classes of business. Some companies estimate that they can afford to spend, in obtaining new business, 50% of the estimated annual revenue of the new business so obtained. One kilowatt in new business, for instance, may bring an estimated annual revenue of $50. On the basis of 50% as the cost of obtaining this business, that company can afford to spend $25 in obtaining this one kilowatt. On this basis, if the company has lost 3,500 kws. through severance of Community A, it may spend $87,500 in developing 3,500 additional kilowatts.

5. Reduced Employees' Efficiency. In one case a company made a claim of about $4,500,000 as damages because of "reduced employees' efficiency." The argument was that condemnation and purchase, by a municipality, of part of the company's system and the operation of a municipal project in the company's midst would have a tendency to upset the morale of the company's organization and thereby reduce its efficiency. The amount of damage claimed was arrived at by estimating the increased operating expenses caused by reduced efficiency, and capitalizing them. The commission before whom the case was heard rejected the claim.

Reasonable Method of Computing Severance Damages

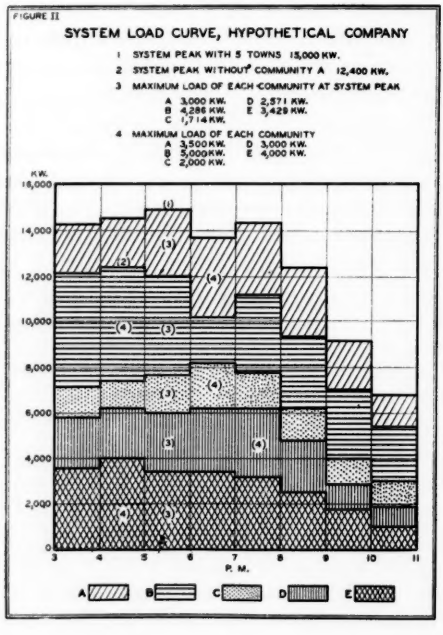
Recognizing the existence of severance damages, there now follows a discussion of what is considered a reasonable method of arriving at a just compensation. Some items included here as part of the damages have been allowed by commissions, while others have not. It is believed that all are worthy of consideration, local conditions, of course, determining the weight to be placed on each.

1. Capitalization of fixed charges on investment in equipment rendered temporarily idle.
   a. Time for recovery.
   b. Damages caused by idle investment.

2. Capitalization of loss through decreased operating load factor.

3. Capitalization of loss through increased operating ratio.

1. Capitalization of Fixed Charges on Investment in Equipment Rendered Temporarily Idle. Referring again to the hypothetical case, the maximum demand of the severed community is 3,500 kws. and, with the system diversity as indicated, 3,000 kws. of power plant capacity are left idle by severance of Community A's load of 3,500 kws. This diversity could result from a large number of combinations of the loads of five towns on an interconnected system, and perhaps no specific combination can be called typical. One possible combination, however, is shown on Chart II, which will help to visualize the conditions assumed. This chart shows the load curves of each of the five towns during the period of the day when maximum demands are most likely to occur and also shows how the five loads combine into the system load curve and produce the system peak.



In the chart the following facts are graphically shown:

1. The system peak, with all five towns in the system, is 15,000 kws. and occurs between 5 and 6 P. M.

2. The sum of the maximum peaks of the local town substations is 17,500 kws. These peaks occur at different times so that only 15,000 kws. of power plant capacity are required to supply the aggregate load of 17,500 kws., or .857 kw. of power plant capacity for each kilowatt of aggregate load. This illustrates the diversity of

$$\frac{17{,}500}{15{,}000} = 1.1666.$$

In practice all loads in an interconnected system that do not have positive off-peak characteristics are given credit for equal contributions to the system diversity so that the combination of loads shown on the chart will illustrate the principle as accurately as any other combination.

3. Community A has a maximum load of 3,500 kws., which occurs between 6 and 7 P.M. Between 5 and 6 P.M. at the time of the system peak, Community A has a load of only 3,000 kws.

4. When Community A is severed, the system peak occurs one hour earlier and drops to 12,400 kws., a decrease of 2,600 kws.

Table II presents load statistics for the individual communities which are the basis for the load curves on Chart II.

It has been argued that no consideration should be given to the fact that the company may obtain new business equivalent to that lost, that the business in Community A is lost forever and any new business secured would be obtained regardless of the actions of Community A. This argument has not met with favor.

For each kilowatt of new business secured, the company must provide additional power pool capacity of .857 kw. at an investment of $333 per kilo-

TABLE II. LOAD STATISTICS, BY COMMUNITIES

	Annual Kwhs.	Individual Town Maximum Loads (Kws.)	Contribution to System Peak (Kws.)	Load Factor
Community A	13,000,000	3,500	3,000	42%
Community B	18,432,500	5,000	4,286	42%
Community C	7,200,000	2,000	1,714	41%
Community D	11,314,900	3,000	2,571	43%
Community E	15,052,600	4,000	3.429	43%
Totals	65,000,000	17,500	15,000	50%

watt of such capacity. In practice, the units of additional plant capacity are on a larger scale, but, considering the increment basis, each kilowatt of new business requires an investment of $333. If the company loses the 3,500 kws. in Community A, it can use the idle capacity to supply 3,000 kws. of new business. The city should pay the company damages during the period of this temporary idleness, but it should not be assumed that this loss to the company is a permanent one. The difficult problem is in the determination of this period of time. It depends on a number of factors, including general business conditions, nature of territory served, cost of obtaining new business, degree of saturation, ability of customers to pay, and competition.[11]

a. Time for Recovery. How long will it require the company to regain the 3,500 kws. lost by severance of Community A? This period of time is at best an estimate. Determination of this period, however, is the key to determining the damages. If it were possible to know future developments, there would be little difficulty in determining this period of time; unfortunately, that is impossible. There will come a time in the future, however, when this period is actually known. For example, six years from the present the records of the company may show that complete recovery of the 3,500 kws. was realized in five years.

If the parties involved are unable to agree on an estimate of this time of recovery, probably some plan can be worked out to adjust the damages, at some future date, after the period of time is definitely known. A five-year recovery period may be agreed upon tentatively, and damages may be calculated on this basis. The city then pays the company such damages, subject to adjustment one way or the other, after the period is definitely known. The parties can agree as to the method of determining the adjustment, such as fixed charges, operating expenses, etc., and a suitable contract entered into. If the future proves that recovery is realized in three years, then the city is entitled to reimbursement of part of the damages paid the company; in like manner, if the future proves that recovery is not realized in five years, then the company is entitled to collect additional damages from the city.

If this method does not meet with favor and the parties are still unable to agree on this estimate of time, it would not be difficult to work out a mathematical formula providing for annual

[11] In *Puget Sound Power and Light Company v. Puyallup*, *supra* n. 4, the court allowed no severance damage for this item because it was shown that the loss of the Puyallup load was so small in proportion to total load of the system as to be negligible at the time in question, when the company had insufficient spare generating capacity and business conditions were such that it would quickly recover any such load lost.

damages to be paid the company by the city, one of the variables in the formula being the period of time. This latter plan has the disadvantage, to the company, in that it is sometimes difficult to collect from the city, particularly if the city finds itself without funds and if the municipal project has not been as successful as contemplated.

For purposes of this discussion it will be assumed that the parties can agree on the period of time, which seems more desirable from a practical standpoint. The period of time, in the example used, will be five years.

Assuming that recovery of the lost business is accomplished at a uniform rate of 700 kws. per year, with the same system diversity, the idle capacity will be utilized at a rate of 600 kws. per year. On this basis the idle capacity will be reduced from 3,000 kws. at the beginning of the first year to 2,400 at the end of the year, or an average of 2,700 kws. for the first year. The investment of the company rendered idle for each of the five years is indicated in the following table:

Year after Severance	Average Idle Kilowatt Capacity	Idle Investment at $333 per Kilowatt
First	2,700	$900,000
Second	2,100	700,000
Third	1,500	500,000
Fourth	900	300,000
Fifth	300	100,000

b. Damages Caused by Idle Investment. The next step is to determine fixed charges on the idle investment. The company must continue to pay interest charges, taxes, and insurance. The equipment must be maintained, and will depreciate through obsolescence at least. For the purpose of this discussion, fixed charges on the investment will be assumed to include interest and depreciation. Taxes, insurance, and maintenance should be considered in determining the damages, but will be accounted for in this discussion under Item 3 (Capitalization of Loss through Increased Operating Ratio). This assumes that these three items are included in the operating expense of the company, although they have the characteristics of fixed costs. If it should appear that a proper recognition of existence of damages caused by an increased operating ratio will be too uncertain, it may be advisable to include taxes, insurance, and maintenance in the fixed charge on the investment, so that proper compensation will be made for these items. It is assumed here that interest and depreciation amount to 10% per year of the total investment. Assuming 7% to be a fair return on the investment, this leaves only 3% to cover depreciation, which is not sufficient when applied only to the depreciable property. For the average utility, however, 3% of the total value of all property will approximate the actual requirements.

Table III shows annual fixed charges on the idle investment as well as the present worth calculated on the basis of 4% compound interest.

TABLE III. FIXED CHARGES ON IDLE INVESTMENT AND PRESENT WORTH

Year after Severance	Fixed Charge on Idle Investment	Factor for Determining Present Worth at 4% Compound Interest	Present Worth
First	$90,000	0.96153846	$86,538
Second	70,000	0.92455621	64,719
Third	50,000	0.88899636	44,450
Fourth	30,000	0.85480419	25,644
Fifth	10,000	0.82192711	8,219
			$229,570

This $229,570 represents that portion of the severance damages under Item 1 (Capitalization of Fixed Charges on Investment in Equipment Rendered Temporarily Idle).

2. Capitalization of Loss through Decreased Operating Load Factor. Severance of a single community will cause a change in system diversity factor except in the extreme and remote possibility that the diversity of the severed load is the same as the diversity of the remainder of the system. It is possible for the diversity to be improved by severance, but hardly probable. Normally, diversity would be hindered, thus causing further damage. Severance of Community A causes a decrease in load factor from 50% to 48%.

Care should be exercised to avoid a duplication in computing severance damages. In the hypothetical case this damage by reason of reduction in load factor has been taken into account in that Item 1 was calculated on the basis of a total loss of 3,000 kws. and not 2,600 kws.,[12] the latter representing the decrease in the company's system demand.

3. Capitalization of Loss through Increased Operating Ratio. The company's operating ratio will be increased by severance because expense eliminated will not be in proportion to gross income lost. There are various ways of estimating this difference in operating expense. Here, for brevity, the operating ratios will be compared. In the hypothetical case, the loss in annual gross operating revenue is $400,000. If expenses were reduced in the same proportion, the company would save $200,000[13] in operating expenses. The company, however, saves only $100,000 in operating expenses through loss of Community A. The remaining $100,000 represents a loss to the company. This loss will decrease year by year over the five-year period until such time as the company regains the 3,500 kws.

[12] See p. 364.

[13] Based on the 50% operating ratio before severance.

The average loss attributable to increased operating ratio for each of the five years will then be:

First year	$90,000
Second year	70,000
Third year	50,000
Fourth year	30,000
Fifth year	10,000

Full compensation for this item of damage would be made by payment of these amounts, respectively, at the end of each year, but in order to determine the amount of a lump-sum payment in advance to accomplish the same purpose, the present worth of these annual payments is computed on a 4% compound-interest basis, the same as Item 1. As these happen to be the same figures as in Item 1, the present worth is $229,570.

The total damage will therefore be:

Item 1—Capitalization of fixed charges on investment in equipment rendered temporarily idle	$229,570
Item 3—Capitalization of loss through increased operating ratio	229,570
Total severance damage	$459,140

This damage, of course, is in addition to the cost of the distribution system and the cost of mending the dead ends.

The damage under Item 3 being exactly the same as that under Item 1 is merely a coincidence, resulting from the values assumed in this particular case.

The above severance damage of $459,140 is based on the assumption that recovery of the 3,500 kws. will be realized in a five-year period. The following table shows the corresponding severance damage, assuming that recovery is realized in a shorter period:

Number of Years for Complete Recovery	Total Severance Damage
One	$ 96,154
Two	190,458
Three	282,346
Four	371,884
Five	459,140

The sole justification for payment of severance damages, as computed for the hypothetical company, is to make the financial position of the company after Community A has severed itself from the system equivalent to its position before such severance. No better proof of the correctness of this method can be given, therefore, than to set up a comparative statement of the company's financial position before and after severance. This will show whether or not losses sustained through severance of Community A, from the two items of damage considered in this example, have actually been made good.

In setting up such a statement it has been assumed that recovery of the lost business would proceed uniformly over a five-year period, and that as the business is recovered the investment in distribution facilities and the local operating expense will increase in the same proportion to the revenue as they existed in Community A before the severance. It has also been considered that the added load will have the same diversity in the system load as did the load of Community A.

The statement "before and after" (Table IV) shows investment, revenue, and expense, with the amount received as damages included in the revenue after severance. Any period could be selected for this statement. In this case the first year after severance has been selected.

In this statement no consideration has been given to any added business before severance. This does not affect the result, however, since the addition of any amount of new business with a proportionate increase in investment and operating expense would not change the rate of return. The necessity of a proportional increase in investment and expense for new business before severance must be assumed, since only the additional idle investment and operating organization caused by severance are being evaluated in this article.

TABLE IV. PROOF OF ACCURACY OF PROPOSED METHOD

Item	Before	After
Company's investment at beginning of year	$10,000,000	$ 9,000,000
Company's investment at end of year	.....	9,200,000
Average for the year	10,000,000	9,100,000
Gross revenue (no recovery)	2,000,000	1,600,000
Recovery during the year is from $1,600,000 annual revenue to $1,680,000 annual revenue, or an average for the year of	.....	1,640,000
Revenue from damage payment—$173,076 paid at beginning of year, which amounts with compound interest to $180,000 at the end of the year	.....	180,000
Total revenue for the year including recovery and damage payment	2,000,000	1,820,000
Operating expense (no recovery)	1,000,000	900,000
Operating expense will increase because of added business from $900,000 annual expense to $920,000 annual expense, or an average for the year of	1,000,000	910,000
Net revenue	1,000,000	910,000
Return on average investment	10%	10%

Although the foregoing example develops one theory or method of determining severance damages, reference is made to other methods that may be considered more advisable under certain conditions. Some companies have made the mistake, however, of presenting two or more different methods in the same case. This has caused misunderstanding. It is better to settle upon one method and base all arguments and calculations on it.

In the last analysis, the method, estimates, and claims must be founded on common sense.

The Districting Plan of Orange County, California

By L. DEMING TILTON*

THE law under which California cities and counties carry on planning activities authorizes the preparation and adoption of a master plan. Included therein is authority for the adoption of a "Districting Plan."

The term "districting" was introduced into the California Planning Act[1] chiefly for the purpose of easing its passage through the Legislature. Zoning, as many public officials know, is a fighting word. Districting more clearly indicates the nature of this particular planning tool. It also suggests its application to non-urban lands and to regions more extensive than municipalities.

Zoning, therefore, is recognized in the California Planning Act as an important phase of the planning process. The establishment of a system of land-use control by districts is sanctioned as a means of effectuating the master plan.

Districting in California

Two counties in the State (San Francisco and Los Angeles) had undertaken zoning prior to the passage of the enabling act referred to above. To date 12 California counties have districting plans in effect.[2] The ordinances represented, with the exception of that in force in San Francisco, all apply to suburban and rural territory outside the limits of incorporated cities and towns. The regulations largely resemble those found in urban zoning ordinances but are adapted to conditions existing in the regions to which they are applied.

By types, these county zoning schemes may be classified as follows:

1. *Comprehensive ordinances*, which establish controls over uses of land, area of yards and open spaces about dwellings, and heights of buildings.
2. *Use ordinances*, which regulate uses of land only. Some of this type are interim or "stop-gap" ordinances, limited in effectiveness to a definite period or pending completion of a more comprehensive, permanent districting scheme.
3. *Special-purpose ordinances*, in which disciplines of various types and degrees of force are effectuated singly or in combinations.

No county in California, except predominantly urban San Francisco, has applied a comprehensive districting scheme to its entire area. Ordinances designated as comprehensive, therefore, represent the full scope of zoning authority only in the area to which they are applied, in most cases but a fraction of the total area of the county. Some counties—notably Los Angeles, San Mateo, Santa Clara, and Orange—have applied special-purpose regulations of simple types to all lands in unincorporated territory not subjected to a more detailed scheme of districts. Marin County in an excess of zeal to control outdoor advertising and without technical guidance zoned its entire area residential, except for certain described industrial, highway business, and general commercial districts.

Because of these variations in ordinance

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[1] Stats. 1929, c. 838.

[2] Counties having districting plans in effect: San Francisco, 1921; Los Angeles, 1927; Santa Barbara, 1929; Monterey, 1930; Kern, 1932; Placer, 1932; San Diego, 1932; Santa Clara, 1933; San Mateo, 1933; Stanislaus, 1933; Marin, 1934; Orange, 1935.

types and the lack of standardized procedure, it is difficult to give an estimate of the total area of California counties at present subject to directional measures of this character. The records to date, however, show approximately 3,280,168 acres of unincorporated county territory in the State under some form of zoning (Table I).

As Table I shows, use of authority to adopt districting plans has not been uniform. There have been experimentation, a necessary adaptation of the zoning principle, and results characteristic of pioneer effort. All the early attempts

TABLE I. AMOUNT OF ZONED AREA, BY COUNTIES

County and Type of Zoning	Acres
1. *Comprehensive districting plans in force*	
Santa Barbara County	5,760
Monterey County	10,700
Placer County	2,560
San Diego County	20,480
San Mateo County	17,920
Orange County	3,170
2. *Use ordinance in effect*	
Los Angeles County	42,016
Kern County*	5,570
Santa Clara County	7,840
San Mateo County*	70,693
Marin County	321,568
3. *Special-purpose regulations*, in some cases supplementing regulations of both above types	
Los Angeles County	2,115,424
Santa Clara County*	822,252
San Mateo County	187,182
Orange County	467,915
Marin County	321,568
Stanislaus County	1,370

* Interim ordinances.

at zoning by counties blazed new trails. Some of the initial schemes now call for general revision in the light of improved techniques.

Orange County

The 58 counties of California, with few exceptions, all have large areas. In many of them the percentage of area devoted to agriculture or otherwise developed is small. These conditions are indicated in Table II.

Orange County is small by comparison

TABLE II. AREAS OF CALIFORNIA COUNTIES

Counties	Area (Acres)	Percentage Developed*	Area in Public Ownership † (Acres)
Five largest counties			
1. San Bernardino	12,912,000	02.6%	7,972,577
2. Inyo	6,394,240	01.5	5,526,781
3. Kern	5,121,920	33.5	999,333
4. Riverside	4,622,720	14.9	1,829,759
5. Siskiyou	4,003,840	15.9	2,104,893
Five median counties			
1. El Dorado	1,111,680	29.2	15,509
2. Butte	1,086,720	57.3	116,675
3. Sonoma	1,012,480	77.6	11,009
4. Mariposa	936,320	24.4	167,184
5. San Joaquin	926,720	76.3	.....
Five smallest counties			
1. Amador	384,640	83.0	79,989
2. Marin	338,560	83.2	2,204
3. San Mateo	286,080	75.0	.....
4. Santa Cruz	278,400	47.1	.....
5. San Francisco	26,880	100.0	.....
ORANGE COUNTY	508,800	65.0%	47,950

* Percentage of total area under cultivation and urban in character.

† Total acreage in public domain, national forests, parks, state lands, etc.

with its neighbors but, as may be seen, conforms to the general rule as to ratios of areas improved, undeveloped, and in public ownership. This County adjoins Los Angeles County on the south and borders the ocean for 40 miles. In 1930 it had a population of 118,674, 46% of which was in 13 incorporated cities.

The government of Orange County follows the principle established in the California Constitution to give uniformity to county government throughout the State. Legislative authority rests exclusively in a body of five supervisors, elected from as many districts for four-year terms. A board of supervisors has essentially the same ordinance-making

power and administrative jurisdiction over unincorporated areas as a city council has in a municipality. As far as exercise of the police power is concerned, the legislative body of the county "may make and enforce within its limits all such local police, sanitary and other regulations as are not in conflict with general laws."[3]

The county planning commission, under the California Planning Act, is advisory to the board of supervisors. This commission is composed of six civilian members appointed by the chairman of the board and three county officials designated ex-officio members. Its work is supported out of general funds appropriated annually in accordance with budgetary requirements. The average annual budget has been approximately $4,000. The technical staff of the commission consists of one draftsman and a consultant, but its program is aided continually by services of the county engineer and employees of the road department.

The Orange County Planning Commission was established in 1929. Its activities to date have been motivated largely by the desire of the Commission and cooperating officials to establish basic principles and standards for guidance of new growth and development. The record of planning progress in this County shows consistent adherence to a definite program and steady advance toward objectives. The first it reached in 1932 when the Board of Supervisors passed, as recommended, an ordinance regulating the subdivision of land. Following this, a Building Code was developed and adopted in 1933. The latest achievement was the final passage of a comprehensive districting plan, December 3, 1935.

The Commission began early to assemble data and records bearing upon present and prospective land uses in the County. When the Emergency Relief and Works Progress Administrations offered substantial aid in a comprehensive land-use survey, such a project was organized and carried to successful completion. This extensive study of the present character and use of Orange County property, together with numerous correlated studies of county development and trends, have given the Planning Commission a clear picture of the organic arrangement and functioning of the County.

The character of this particular political unit of Southern California is clearly indicated on Plate I. The most significant feature of the existing land-use pattern of Orange County is the orchard area of approximately 81,000 acres surrounding the cities of Fullerton, Anaheim, Orange, and Santa Ana. Citrus and walnut crops from this section account annually for about $22,000,000 of the total county income, estimated in 1935 at $73,000,000. Oil fields in the northern part of the County and along the coast near Huntington Beach bring in a yearly revenue slightly more than the orchard areas. Lesser agricultural crops produce returns amounting generally to about $8,000,000.

Agriculture is the predominant industry and represents the most extensive use of land. Some of the land units are very large. One ranch has over 100,000 acres; several others are equally impressive in area. There is little manufacturing. The larger developed industrial districts of Los Angeles County are just across the county line, some 30 minutes away from the center of Orange County. The principal nuisance uses of land are the oil fields, pumping plants, and refinery areas, which represent a declining activity. Commercial dairies

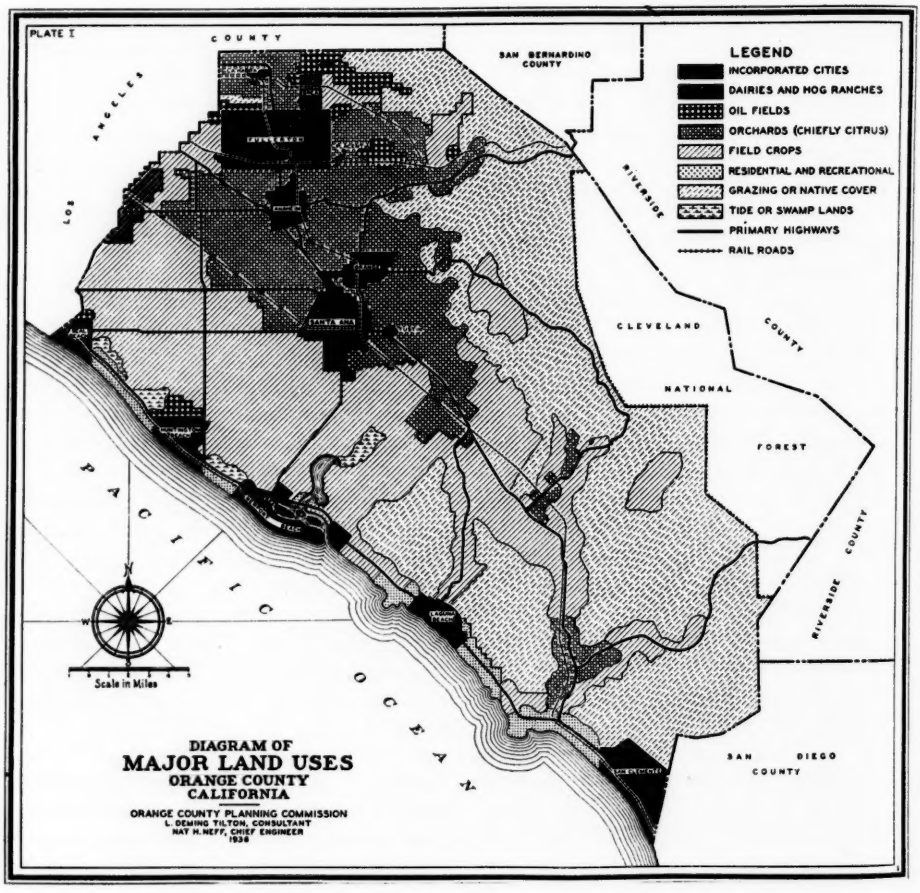
[3] Calif. Const., Art. XI, §11.

and garbage-feeding establishments have appeared along the County line chiefly because of restrictive regulations in Los Angeles County.

Because of proximity to metropolitan Los Angeles and also because of the exceedingly attractive character of recreational and residential areas along the shore, there has been a fairly steady pressure of land subdividing in Orange County. A considerable proportion of the frontage of main highways has been laid out in small lots and offered for sale. Producing orchards are destroyed in the high-value citrus belt in order to accommodate business establishments and the small cottages which follow promotional land selling. In the coastal area, examples may be found of all the irregular and improper types of land subdivision. These present increasingly difficult problems of administration from the standpoint of utilities, sanitation, water supply, and traffic regulations.

The Need for Zoning

Any study of its present character clearly reveals the fact that the land resources of this County are outstanding and worthy of the highest type of com-



prehensive and detailed planning. The need of official action to stabilize and insure land values and establish a basis for more orderly development can be demonstrated. It is difficult indeed for any growing community to maintain desirable social and economic standards in the face of indecision and official indifference to constant changes in the land-use pattern. Like many other counties, Orange County was scarcely aware of the effect upon its fundamental character of automobile usage, the extension of highways and utilities, and other expressions of modern life until the surveys and studies of its planning commission got under way.

The evidence which was assembled to support the need for zoning in the County was voluminous. It may be reviewed briefly as follows:

1. *The requirement of the Federal Housing Administration and responsible lending institutions that improved property to qualify for a secured mortgage must be adequately insured by either proper zoning or effective deed restrictions.* Records show that much of the subdivided property outside the cities in Orange County has no protecting restrictions. Moreover, some of the schemes of restrictions in effect are drawn obviously to favor the real estate promoter and to confuse and mislead the lot purchaser.

2. *Increasing public resentment against the spread of commercialism and unregulated advertising along primary highways and scenic routes.* The destruction of the natural attractiveness of orchard, mountain, and coastal sections of the county has increased notably in recent years. Studies of the principal tourist route along the shore revealed an extraordinary spread of flimsy, sign-incrusted service stations, auto courts, beer parlors, and eating places. A grand total of 6,400 signs of all types was counted on 346 units of private property in a distance of 40 miles. On one ugly combination store and filling station 125 signs were reported. The facts disclosed by this survey of frontage uses on the Coast Highway and evidence of the injurious effect of scattered and generally unprofitable business establishments upon surrounding property values gave impetus to the demand for zoning.

3. *The inability of the County, under the California law, to control the subdivision of land in the interest of sanitation, fire protection, and general community advancement.* Subdividers unwilling to submit to official rules governing approval of maps for record sell by metes and bounds. On sightly hillsides, commanding superb views out over the ocean, they lay out and market by pressure methods lots 35 feet wide and 40 feet deep. In one case, as illustrated on Plate II, even after lots of adequate size were shown on the subdivision map and official approval of the map obtained from the County, sales were made of numerous "postage stamp" parcels. With millions of acres of California available for residential use, it seems extraordinary, to say the least, that any land should be butchered and mutilated to make "sales." In these areas are planted the germs which will later grow into those cancerous exhibits known as slums. In cheap, small-lot, hillside subdivisions, where no sewers exist and water is scarce, a concentration of dwellings will be reached which may send the cumulative effluent of septic tanks down the hill from one lot to the next, under and around homes and out into the streets. When the malodorous condition appears, the health officers of the County will be called in to work out, if possible, an adjustment of the neighborhood difficulty. With the completion of each new dwelling, the problems of sanitation, fire protection, preservation of views, maintenance of streets, and prevention of distress sales to undesirables increase.

4. *The importance of giving high-quality residential areas within zoned cities adequate protection against destructive types of land utilization just outside city boundaries.* Six of the 13 incorporated places in Orange County have zoning ordinances in effect. Within these cities and in areas contiguous thereto are many residential districts of praiseworthy types. The County derives considerable revenue from properties of such character and in its own interest must be concerned with the preservation of established values. Inexpensive public insurance can be given properties exposed in the manner indicated.

5. *The desirability of establishing proper land units and standards for spacing dwellings*

in recreational and resort communities. The forested and brush-covered back country of Orange County is highly popular for recreational use, as are the sandy beach areas along the shore. In the former, fires are a constant menace. The Forest Service has established a minimum land unit of 10,000 square feet for cabin sites in the National Forest in the interest of fire protection and sanitation. On private lands in these same hazardous districts, however, no such standards can be enforced without zoning by the county. Along the beach there is a constant tendency to crowd dwellings together, thus increasing the fire hazard, reducing the sunshine and circulation of air in rooms, and defeating the purposes which lead people to beach and shore districts. The need of minimum standards for spacing dwellings in such areas is obvious.

6. *The increase of highway traffic and the mounting casualty list from highway accidents indicate the importance of concentrating business and incidental auto parking at strategic corners and in plainly marked reduced-speed centers.* At 60 miles an hour no motor driver should be intrigued by a dazzling trade display, a flashy commercial sign, or be interfered with by cars backing out of some wayside stand. The highway engineers have succeeded, with an effectiveness which has greatly impressed the railroads, in creating competitive high-speed transportation lines. Zoning to enable the highways to function more safely and more effectively as carriers is a necessity, a phase of the problem of highway development at present only dimly recognized by road builders.

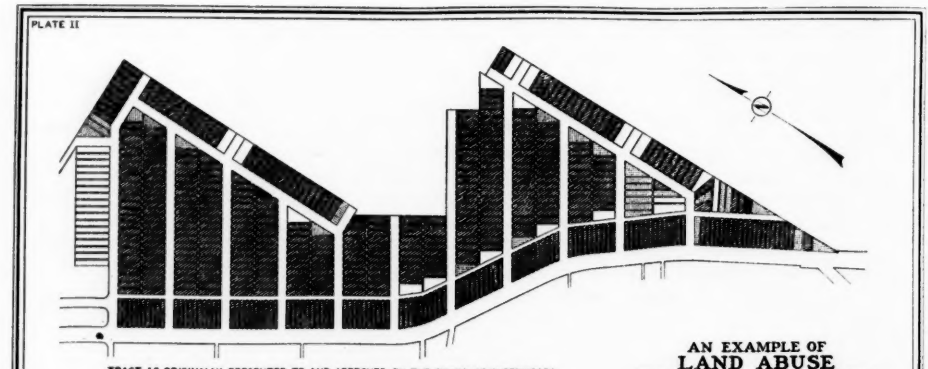


PLATE II
TRACT AS ORIGINALLY PRESENTED TO AND APPROVED BY THE BOARD OF SUPERVISORS. NO PLANNING COMMISSION. MAP RECORDED IN 1927. LOTS GENERALLY 35 FEET BY 125 FEET. STREETS LAID OUT ON EXCESSIVE GRADES WITHOUT REGARD TO CONTOUR OF LAND.
AN EXAMPLE OF
LAND ABUSE
ORANGE COUNTY CALIFORNIA
HILLSIDE TRACT OVERLOOKING OCEAN. 72 ACRES. NO SEWERS. LIMITED WATER SUPPLY. NARROW PRIVATE STREETS. INADEQUATE RESTRICTIONS. SALES BY METES AND BOUNDS.
ORANGE COUNTY PLANNING COMMISSION
L. DENING TILTON. CONSULTANT
HAT N. HEFF CHIEF ENGINEER
1938
SCALE IN FEET
SAME TRACT IN 1936. SALES BY METES AND BOUNDS AFTER APPROVAL OF MAP. ORIGINAL LOTS CUT INTO 3, EACH 35 BY 40 OR 45 FEET. NEW CUL-DE-SAC AND CROSS STREETS OPENED ALONG CONTOURS. LOT SIZES IMPROPER. EXCESSIVE AREA IN STREETS. CROWDING OF DWELLINGS. LOSS OF VIEWS. UNSANITARY CONDITIONS. INJURY TO INVESTMENTS IN THE NEIGHBORHOOD.
LEGEND
LOTS HAVING AREA FROM 6000 TO 10000 SQUARE FEET.
LOTS HAVING AREA FROM 4500 TO 6000 SQUARE FEET.
LOTS HAVING AREA FROM 3000 TO 4500 SQUARE FEET.
LOTS HAVING AREA LESS THAN 3000 SQUARE FEET.

The list of basic arguments for establishment by the county of a system of land-use management in the public interest could be extended considerably. They all spring, however, from one primary consideration; the county, because it has jurisdiction so largely over unspoiled territory, is in position to guide and direct new growth and development along sound, generally beneficial lines. This it can do by an early recognition of its planning responsibilities and by timely application of a mild zoning discipline.

IV. Prodecure in Adoption of Ordinance

In preparation for adoption of a districting plan for Orange County, the Planning Commission carried on studies of present conditions and trends for a period of over two years. Its findings, which have been summarized above, were discussed informally with members of the Board of Supervisors and citizens in different sections of the County. In outline form, the districting plan was presented to service clubs and interested organizations. Efforts were made to obtain the advice and judgment of civic leaders before any zoning scheme was scheduled for public hearing. The processes employed in the development of the plan and ordinance necessitated many changes in the initial draft, but the final result was undoubtedly more satisfactory than if the ordinance had been advanced more rapidly.

Before the ordinance was submitted to the public, numerous maps were prepared for exhibition purposes, to show in general and in detail the character and extent of existing land uses and to reveal the problem of land management from an official standpoint. The principal maps and charts used are as follows:

MAPS AND CHARTS PREPARED

1. *Comprehensive Land-Use Survey*, Orange County showing present pattern of uses.
2. *Existing and Proposed Major Highways.*
3. *Traffic Flow Diagrams.*
4. *Orange County* showing the South Laguna Section, in which it is recommended the Districting Plan be first applied in detail.
5. *Present Uses of Property* in South Laguna Section.
6. *Existing Lot Areas*, South Laguna Section, showing the haphazard distribution of large and small land units and the numerous small lots in areas without sewers.
7. *Metes and Bounds Subdivisions*, South Laguna Section, some of which have been promoted in disregard of subdivision regulations and community welfare.

8a. *Lot Area Study* of subdivisions, showing lot sizes approved by the County Planning Commission and Board of Supervisors in 1932 and 1934 as conforming to county regulations and as shown on recorded map.

8b. *Lot Area Study* of subdivisions, showing lot sizes as sold and as shown on assessment rolls, June, 1935.

9. *Lots Assessed to Subdividers*, showing platted but unsold lots.
10. *Diagram Showing Public Beaches, Parks, and Status of Streets and Ways*, South Laguna Section, showing limited recreation facilities for large population.
11. *Proposed Districting Plan.*

In accordance with the law, the Planning Commission held two formal, advertised hearings upon the ordinance and continued these hearings until it appeared that everyone having an interest in the proposition and a contribution to make to the improvement of the ordinance had been heard. The first hearing was held within the territory which was to be subjected first to the full discipline of the ordinance. Later hearings, beyond the number required by law, were held in the quarters of the Planning Commission. A final hearing, which was also continued, was held before the Board of Supervisors after the ordinance had been presented to them with the endorsement of the Planning Commission.

The principal opposition to the ordi-

nance came from two sources: (1) real estate interests whose activities and operations were the basis of demands for zoning in certain sections of the county; and (2) owners of property fronting upon a primary highway who had been told by salesmen that their property, because of its highway frontage, was valuable for business.

Representatives of both these groups made vigorous protests in the early hearings on the ordinance. Circular letters were sent to owners of highway frontage urging telegraphic and personal opposition to the plan. During the course of the hearings before the Planning Commission and before the Board of Supervisors owners of large estates and ranches and representatives of the Orange County Farm Bureau raised questions regarding application of the districting plan to non-urban properties. Various minor changes were made in the draft of the ordinance to recognize the needs and interests of owners of agricultural lands.

Eventually, by the slow process of adjustment, the presentation of facts in refutation of unfounded arguments against the scheme, and by patient explanation of the aims and purposes of the ordinance, it was finally brought into satisfactory shape and passed. At the final hearing of the ordinance before the Board of Supervisors practically no protests were heard; arguments were all in favor of its passage.

V. General Character of the Ordinance

The Orange County Districting Plan is comprehensive in character in that it establishes a control over the uses of land, the areas of building sites, yards, courts, and other open spaces, and the heights of buildings. The ordinance is made effective by establishment of districts similar in character and purpose to districts in an ordinary municipal zoning ordinance. The basic scheme of districts established by the ordinance and applicable in any combination to any part of the County by the adoption of official maps is as follows:

Non-Urban Types of Districts

RA—*Roadside Agricultural Districts*, designed for use along primary and scenic highways to restrict outdoor advertising and scattered commercial uses and to preserve the fundamental non-urban character of the highway frontage;

E1—*Estates Districts*, establishing high-quality open types of residential use, the minimum land unit being one acre;

E2—*Small Farms Districts*, permitting one- and two-family dwellings and incidental uses common in suburban areas, the minimum land unit being 20,000 square feet;

E3—*Mountain Estates District*, set up primarily to regulate the spacing of dwellings in summer resort subdivisions in forest areas, minimum land unit 10,000 square feet;

Urban Types of Districts

R1—*Single-Family Residence Districts*, for the protection of first-class, restricted subdivisions and neighborhoods of single-family homes on typical city lots, minimum land unit 6,000 square feet;

R2—*Group Dwelling Districts*, permitting one- and two-story bungalow courts and group dwellings; minimum building site 6,000 square feet, minimum land area per family 1,000 square feet;

R3—*Apartment Districts*, allowing dwellings 4 stories in height but requiring a minimum land area of 6,000 square feet per building site and 1,000 square feet per housekeeping unit;

C1—*Local Business District*, allowing a limited number of types of retail business, one and two stories in height, with setback requirements for the protecion of adjoining residential developments;

C2—*General Business Districts*, open to a broad list of commercial interests and permitting structures equal in height to the width of the street;

M1—*Light Industrial Districts*, for the accommodation of all inoffensive types of manufacturing and storage;

M2—*Unrestricted Districts*, in which practically all structures and uses except dwellings are permitted;

M3—*Unclassified Districts*, designed for application to the extensive undeveloped areas, grazing and farming lands back from main highways and all other sections of the County for which no significant changes in use can be anticipated.

The yard, building height, and other regulations are indicated in Plate III.

This is a permanent ordinance, not an interim measure. It resembles ordinances now in effect in Los Angeles and

PLATE III. DISTRICT REGULATIONS FOR HEIGHTS OF BUILDINGS, BUILDING-SITE AREAS, YARDS, AND DISTANCE BETWEEN DWELLINGS OR MAIN BUILDINGS ON SAME LOT, AS PROVIDED BY ORDINANCE NO. 351 (ZONING ORDINANCE) EFFECTIVE JANUARY 2, 1936.*

Districts	Maximum Building Height	Minimum Building Site Area	Minimum Front Yard (Front Centerline of Street)	Minimum Side Yards	Minimum Rear Yard	Minimum Distance between Dwellings or Main Buildings on Same Lot
RA Roadside Agricultural	2 Stories or 35 Feet	6,000 Sq. Ft. 1,000 Sq. Ft. for Each Family Unit	Main & Accessory Bldgs. 100 Feet Temporary Bldgs. 50 Feet	5 Feet	25 Feet	10 Ft. for 1 Story 15 Ft. for 2 Stories
E1 Estates	2 Stories or 35 Feet	1 Acre	75 Feet	20 Feet	50 Feet	Only One Main Bldg. Permitted
E2 Small Farms	2 Stories or 35 Feet	20,000 Sq. Ft.	75 Feet	10 Feet	40 Feet	Only One Main Bldg. Permitted
E3 Mountain Estates	2 Stories or 35 Feet	10,000 Sq. Ft.	75 Feet	30 Feet	40 Feet	Only One Main Bldg. Permitted
H1 ingle-Family Residence	2 Stories or 35 Feet	6,000 Sq. Ft.	50 Feet	5 Feet	25 Feet	Only One Main Bldg. Permitted
H2 oup Dwellings	2 Stories or 35 Feet	6,000 Sq. Ft. 1,000 Sq. Ft. for Each Family Unit	50 Feet	5 ft. Increased by 2½ ft. for Each Family Unit in Excess of 2 But Not Exceeding 10 Ft.	25 Feet	10 Ft. for 1 Story 15 Ft. for 2 Stories
H3 Apartment	4 Stories or 60 Feet	6,000 Sq. Ft. 1,000 Sq. Ft. for Each Family Unit	50 Feet	5 Ft. for Main Bldgs. up to 2 Stories, Increased By 1 Foot for Each Additional Story	25 Feet	10 Ft. Up To 2 Stories 15 Ft. Above 2 Stories
C1 ocal Business	2 Stories or 35 Feet	None (Bldg. Code)	50 Feet	5 Ft. for Buildings used Solely for Dwelling Purposes	25 Feet	None (Bldg. Code)
C2 neral Business	Width of Widest Street upon Which the Building Faces†	None (Bldg. Code)	None (Bldg. Code)	5 Ft. for Buildings Used Solely for Dwelling Purposes	25 Feet	None (Bldg. Code)
M1 ght Industrial	Width of Widest Street upon Which the Building Faces†	6,000 Sq.Ft. for Each Dwelling	50 Feet	5 Ft. for Buildings Used Solely For Dwelling Purposes	25 Feet	None (Bldg. Code)
M2 Unrestricted	None (Bldg. Code)	None (Bldg. Code)	50 Feet	None (Bldg. Code)	25 Feet	None (Bldg. Code)
M3 Unclassified	None (Bldg. Code)	6,000 Sq. Ft. for Each Dwelling	None (Bldg. Code)	None (Bldg. Code)	None (Bldg. Code)	None (Bldg. Code)

*The above regulations are subject to the special provisions as set forth in sections 18 and 19 of said ordinance No. 351. When other laws, ordinances or agreements between parties provide more rigid regulations, they shall govern.

†The maximum building height for "C2" and "M1" districts may be exceeded provided the total cubage of the building does not exceed that of a structure occupying the entire building site and of the maximum allowable height.

San Mateo counties in that it establishes certain limited controls over uses of land in all unincorporated areas of Orange County. The Unclassified District, as set up in the schedule, is applied to all property outside municipalities except areas which are subjected to a more detailed classification.

The full scope of the districting plan may be made effective in any portion of the County by the preparation and adoption of a series of official district maps. The first section of the County to be brought under this type of regulation is an area of sightly residential land south of Laguna Beach. The location and extent of the territory thus zoned are shown on Plate IV. The public hearings above referred to were directed largely toward determination of a proper scheme of districts to apply to this important unincorporated community.

In any subsequent application of the ordinance, the hearings will relate not to the basic structure of the ordinance but to the map-adopting amendment thereto which will bring into effect the specific pattern of districts designed for the area under consideration. It was emphasized frequently throughout initial hearings that one advantage of this method of establishing control over the land-use pattern of Orange County lay in the fact that the master ordinance would have to be adopted only once. Subsequent extensions of the scheme or amendments of the ordinance would be short and inexpensive publications.

In conformity with the requirements of the California Planning Act, a full set of maps of districts established in the South Laguna section was published. These maps were drawn at an original scale of 400 feet to 1 inch and were trimmed for binding in an atlas. In the course of time other sections of the County will come under the districting plan and similar maps will be prepared and bound in this volume.

The designation of districts was made by use of symbols applied in each block. In the case of commercial districts, apartment districts, industrial and unrestricted districts, a system of black and white indications will be employed in addition to the letter symbols. The administration of the plan is simplified by having commercial areas and other districts which frequently have a determining influence in the development of adjoining properties shown plainly and with a certain degree of emphasis in the district maps.

VI. Significant Features of the Ordinance

Certain features of the Orange County ordinance are worthy of note because they depart from established precedent.

Building-Site Requirements. The building-site requirements in each district are regarded as important. This ordinance establishes 6,000 square feet as a minimum land unit for residential occupancy in all parts of the unincorporated areas of Orange County, except in business districts or where the districting scheme establishes a higher area requirement or where land lies within 1,000 feet of tide-water. In the latter case, which will apply largely to seasonal recreational communities, a minimum land unit of 4,000 feet is established.

Justification for the 6,000 square foot single-family lot is found in the building practices and sanitary requirements of the County. Lot depth, except in hilly sections, is much less important than it used to be. California homes, moreover, are generally built one story in height and have widths which tend to produce undesirable crowding on 50-foot lots. In many parts of Orange County to which this districting plan will be applied there are no sewers. Disposal of

sewage must, therefore, be provided for upon each individual lot. In certain areas, because of rocky or impervious soils, an adequate lot area for the disposal system of a septic tank is essential.

The largest building-site requirement of the districting scheme is set up in the Estates Districts. Wherever such districts are designated on official maps, the subdivision of land must be in units of not less than one acre. A building permit will not be issued for a dwelling unless the owner can show possession of at least one acre of land or, in case of a small lot, evidence of ownership prior to the effective date of the ordinance.

Control of Nuisance Uses. The Unclassified District will have its greatest value in preventing establishment of objectionable, nuisance-type businesses in the immediate vicinity of protected residential districts, public schools, parks, and important highways. Potentially injurious land uses, as listed in the ordinance, will be under limited control even though no detailed application of the ordinance has been made. The owner of an attractive country estate in a residential district protected by deed restriction will be assured that certain value-destroying land uses cannot be established within 500 feet of such a subdivision. Some of the farm group who objected to other features of the ordinance favored increasing this distance to 1,000 feet or more. This change may be made later.

Roadside Control. General control of frontage along highways is provided through application of a Roadside Agricultural District. It is expected that this district will be indicated on official maps as a strip of varying width, depending upon topographic and other conditions, bordering certain scenic highways. All types of residential uses, as well as agriculture and certain earth-extraction industries, are permitted within this district. Under limited conditions, temporary stands for disposal of agricultural produce are permitted but general commercial uses and outdoor advertising are excluded. Outdoor advertising is provided for and permitted only in commercial and industrial districts.

Progressive Expansion of Business Nuclei. Provision is made for the progressive expansion of commercial districts under economic necessity. A small nucleus of business lots at an important highway intersection may be designated as a commercial center, with the understanding that when purchasing power derived from the neighborhood or from traffic causes the center to build up, an automatic extension of the district takes place to permit progressive construction of additional stores on adjoining lots. This device has unsatisfactory features, but it also has the merit of reflecting actual processes of community growth and of permitting bona fide economic demand to rule in the creation of business districts.

The introduction of this feature into the Orange County zoning ordinance was an outgrowth of many discussions with property owners on the heavily traveled Coast Highway. Scores of lots and thousands of feet of frontage on this route have been sold as potential business property. The unfortunate owners of this frontage, many of them elderly, have no understanding of the economic processes that bring about the use of land for business purposes. The salesman told them that the lot was good "business" property and they believed him. He did not tell them when it might be wanted for business or how long they might have to pay taxes on it as useless vacant land.

The enormous quantity of "fake"

LEGEND
E-1 DISTRICT
R-1 DISTRICT
R-3 DISTRICT
C-1 DISTRICT
RANCHO NIGUEL DISTRICT BOUNDARY
DISTRICT BOUNDARY
COAST HIGHWAY
PACIFIC OCEAN
CITY OF LAGUNA BEACH
DISTRICTING PLAN
SOUTH LAGUNA SECTION
ORANGE COUNTY-CALIFORNIA
ORANGE COUNTY PLANNING COMMISSION
MARCH 1956
SCALE IN FEET
PLATE IV

business property found along primary highways is a constant challenge to the land-use planner. The common practice is to establish long, shoe-string business districts, in deference to the wishes and demands of owners and salesmen. This provides many times as much business area as purchasing power is likely to support within any reasonable period. The result is injurious to the neighborhood. The blight of this type of zoning shows in time in a plethora of signboards, flimsy stores, desolate service stations, and other like exhibits. The property will not be used for dwellings and cannot support trim, profitable businesses because of the excessive amount competing for use.

Under the Orange County plan, a business district can be established proportional to expected neighborhood population and probable traffic increase. If the district develops and grows, it does so as a compact, unified service area, with values derived from its vitality and generally attractive character. This method of handling essential commercial groups in growing county territory directs attention first to the improvements of residential properties and makes commercial growth a by-product thereof. The aim is to create stable attractive home neighborhoods which will bring in new population and the purchasing power to support business.

Home Occupations. The recurrent demand for permission to establish home occupations in residential areas will be met by regulations adapted in each instance to the character of the district. Control will be strict in the superior types of estate and single-family dwelling districts. Objectionable features of such uses are recognized in the limitations upon advertising signs, display of goods or merchandise, number of assistants employed, and type and quantity of power used. The Planning Commission found that home occupations, such as dressmaking, teaching, maintenance of offices and studios, small laboratories and shops were not generally regarded as detrimental in a neighborhood until flashing electric signs were installed, cases or piles of goods were set up for advertising in the front yard, auto parking congested the street, and other evidence appeared tending to show establishment of a business aggressively competing for trade.

Architectural Control. The need for control of the exterior designs of commercial buildings in certain business centers is recognized, and regulatory machinery is introduced into the ordinance for use when required. This feature of the ordinance does not become effective, however, except by special action of the Board of Supervisors in the adoption of an official highway plan.

In this ordinance, if it is deemed wise to do so, the exterior architectural designs of new buildings in commercial centers along main highways can be supervised. The regulation covers only exterior treatment of buildings. It would have nothing to do with the size or interior arrangements. It would be enforced through an unpaid advisory board composed of two architects and one member of the Planning Commission. Thirty days would be allowed for action of this board, during which time their effort would be to get the builder to conform to suggestions made regarding proportions of the building, shapes, ornaments, materials, colors, signs, etc.

The Planning Commission, upon the advice of its architectural advisors, would establish broad rules and standards as to style of architecture, colors, materials, etc., which will be used as a basis of action upon building plans in

each district. The number and size of signs would also be covered in the ordinance for the purpose of reducing the wasteful quantity of point-of-purchase signs and placing all business upon an equal footing as far as advertising is concerned. Upon acceptance of the recommendations of the architectural advisory board, a permit would be issued. If the recommendations are rejected, however, the builder may appeal to the Board of Supervisors, who after a public hearing on the case may modify the recommendations of the architectural board and order a permit to be issued on such terms and conditions as they may prescribe.

The successful application of a measure of discipline such as this depends largely upon the attitude of the people of the county toward the appearance of their highways. If they are complacent and satisfied that the business buildings and advertising displays now observed are not objectionable and not subject to criticism or improvement, then little can be done along this line.

Set-back Lines on Major Highways. This ordinance, if properly correlated with the official Master Plan of Highways, can be used to prevent costly improvement of land needed ultimately for future highway rights-of-way. This is done by establishing special front-yard widths along existing or proposed major highways.

In order to make use of this plan for a more economical widening of highways however, it will be necessary for the county to have an official major highway plan. No uncertainty or arbitrary application of regulations can be permitted. Enforcement of official street lines must be uniform and reasonable throughout and based upon an official comprehensive Master Plan of Highways.

Non-conforming Uses. Non-conforming uses are not numerous or troublesome generally in newly developing county territory. Where they do occur, however, there is often doubt as to the propriety of drawing a plan which ignores their presence. In some instances it can be shown that they meet a genuine need and that the neighborhood is adjusted to them.

Following a thought expressed by the late Ernst Freund of Chicago,[4] an eminent authority on the police power, provision is made in the Orange County ordinance for a realistic management of non-conforming uses. One may remain where it is under two conditions: namely, (1) that no structural alterations or repairs are made which increase the cubage of the building or amount in any one year to more than 25% of its assessed value, or (2) that a conditional permit is obtained for alterations which bring the building and its uses into fairer conformity with the neighborhood. This second clause enables the public authorities to secure an improved type of building, a deeper set-back, side yards, and other betterments in those non-conforming uses which are firmly established and have a right under the law to remain. The owner of a non-conforming store or business, recognizing the value of his monopolistic position, can afford to accept any reasonable conditions established for the protection of neighborhood interests. If he elects to disregard the welfare of the district, the machinery of the ordinance will operate to eliminate him in time.

Conditional Permits: Conditional permits of other types are authorized in this ordinance but under general rules plainly set forth therein. In the Estates Districts, for example, the following

[4] *Proceedings*, National Conference on Planning, 1929, p. 79.

uses are allowed subject to the issuance of a conditional permit in each instance:

Residential hotels, upon condition that (1) the building site contain not less than ten (10) acres, (2) building coverage not to exceed thirty-five (35) per cent of the area of the site, (3) fifty (50) per cent or more of the guest rooms to be provided in detached buildings and (4) all building and plot plans be approved by the Planning Commission.

Public utility buildings and structures, upon condition that all plans be approved by the Planning Commission.

Commercial stables, upon condition that the location and building plans all have approval of the Planning Commission.

Cemeteries, mausoleums, and crematories, upon condition that (1) the area of any cemetery be not less than forty (40) acres and (2) that all landscape and architectural plans be approved by the Planning Commission.

Churches, museums and libraries, upon condition that (1) the location and building and plot plans be submitted and approved by the Planning Commission.

Schools, colleges, public playgrounds and athletic fields, upon condition that (1) an area adequate, in the judgment of the Planning Commission, to reduce possibility of injury to adjoining residential properties be provided, and (2) building and plot plans to be approved by the Planning Commission.

Airplane landing fields for private use, upon condition that (1) the location and all plans be approved by the Planning Commission.

This feature of the ordinance gives it an essential degree of flexibility. It recognizes the following facts: that representatives of each of the above uses may be expected in Estates Districts; that in a certain place and under certain conditions one may be entirely acceptable and another extremely detrimental, and that successful planning of any growing, developing region requires adjustment, compromise, and occasional modification of rules to permit entirely worthy improvements and justifiable changes in the community pattern.

Adjustments. Adjustments and limited departures from established regulations are made possible by the issuance of conditional permits, as indicated above. In each case, however, there must be a showing of necessity, a public hearing upon the matter, and a formal report to the Board of Supervisors. The Planning Commission holds the hearing, makes its own findings, and establishes the conditions under which it will recommend issuance of a permit. The Board of Supervisors acts upon the report of the Planning Commission and gives special authority for the issuance of the conditional building permit.

Amendments. Amendments of the ordinance may be initiated by the Board of Supervisors, by the Planning Commission, or by petition of property owners. The Planning Commission is required in each case to render a report and recommendation upon the proposed change. A fee of $10.00 may be charged at the time of filing of any petition for amendment of the ordinance.

Extensions of the system of districts will be made hereafter by the adoption of Sectional District Maps as an amendment to the Master Ordinance. New territory to be zoned will be studied, tentative maps of districts will be prepared, hearings held, and by a short ordinance these maps will be made official and related directly to the regulations established in the basic scheme.

Enforcement. Enforcement of the ordinance may follow one or both of two procedures. Prosecution of a violator is possible under a common misdemeanor clause, or an injunction suit may be brought on the ground that any structure or use of property maintained contrary to the provisions of the ordinance has the character of a public nuisance. It seems more reasonable, in considering the problem of providing for effective enforcement of measures of this type, to regard violations as errors in the

management of property rather than as crimes. The law should permit the county to move most aggressively against the thing that is offensive and irregular rather than against the person responsible for it.

VII. Problems of Administration

Orange County is more fortunate than many in California, as far as the administration of a land-use control plan is concerned, because it has a building code in effect and a department operating for inspections and issuance of building permits. The lack of such facilities makes effective zoning almost impossible in extensive non-urban regions. Many who are thinking in terms of a more rigid discipline over the uses of land outside cities fail to realize the importance of a permit-issuing, inspecting agency. The Building Inspector of Orange County has from the first shown exceptional interest in the problems of zoning, has helped considerably in the development of the plan, and is now an important factor in putting the new regulations into effect with a minimum of friction and conflict.

The Planning Commission and the Board of Supervisors of this County have both been fully aware of the importance of a firm but sympathetic and reasonable application of this new law, especially during its introductory years. The people who live "out in the country" do so in many instances because of a desire to escape regulations and governmental control. They instinctively rebel at every progressive advance of authority. They would like to maintain primitive political institutions but enjoy the hard roads, utilities, land values, and other advantages of modern community life.

It is not easy in cities, even under the most favorable conditions, to make a well-considered zoning scheme work; the application of an integrated, comprehensive system of regulations by districts in the county is bound to be more difficult. Because of this, the Orange County ordinance is drawn so that it can be given flexibility where necessary. The ordinance will be administered in the early stages with full understanding of the interests of citizens of unincorporated county territory. The general educational program of the Planning Commission is depended upon to lessen resistance caused by misunderstanding and ignorance.

The aim of Orange County officials is to provide a limited but essential control over the emerging pattern of land uses throughout the county. Where topographic conditions, soil, land values, sanitary problems, limitations of water supply, or other factors clearly call for a strong discipline, a scheme of districts can be established which will definitely mould and shape the uses of land according to a predetermined design. Where rigidity is less desirable, the ordinance permits establishment of a bare minimum of control.

If it should ever be considered necessary, in the interest of crop regulation or establishment of a more enlightened system of soil management, to introduce agricultural districts of one sort or another, they can be added in any number to the basic scheme of districts set up in the master ordinance.

For all phases of land-use planning which are presently in view, the Orange County districting ordinance adopted in 1935 offers a satisfactory administrative procedure. It can be used to effectuate any plan or system of regulations which can be expressed by a scheme of districts.

The Traffic Record of Transport Agencies, 1928-1935

By JOHN D. SUMNER*

THE shifts in traffic among the principal agencies of domestic freight transport during recent years include a number of interesting developments. While popular attention has been focussed upon the rise of motor trucking, rapid strides have been made by other media of transport, notably the carriers by waterway and by pipe line. To a striking degree the traffic of each of these agencies has withstood the inroads of depression and even gained in volume. To an extent not generally realized, the waterways and petroleum and gasoline pipe lines occupy an increasingly significant position in domestic transportation.

The purpose of this discussion is to present the traffic record of the past eight years and to call attention to the more important aggregate changes that have occurred therein. Emphasis will be placed upon the position of the more significant domestic waterways, while the paucity of reliable statistical information will necessitate only passing reference to the motor trucking industry. The following points will be treated: (1) share of the tonnage moved by each of the several types of carriers; (2) annual changes in their respective volumes of traffic; (3) the record of the principal waterways; (4) the position of the Inland Waterways Corporation, or federal barge line[1].

Comparative Traffic Volume. In 1932, the most recent year for which fairly reliable data are available for intercity trucking, railroads transported somewhat more than ½ (53%) of the volume of domestic freight, trucks about ¼ (23%), and waterways somewhat less than ⅕ (17%). Petroleum pipe lines transported approximately 6% of the total, while electric railways and airlines carried insignificant amounts. The record is presented in Table I.

TABLE I. COMPARATIVE POSITION OF PRINCIPAL AGENCIES OF FREIGHT TRANSPORT, 1932 [a]

Agency	Tonnage (Thousands of Short Tons)	Per Cent of Total
Steam railroads	678,854	52.8%
Intercity trucks	299,768	23.3
Waterways	215,914	16.8
Pipe lines (petroleum)	80,029	6.2
Electric railways	11,660	.9
Air lines	.5	.....
Total	1,286,226	100.0%

(a) Statistics for all save waterways are taken from *Regulation of Transportation, op. cit.*, pp. 3, 262-3. Electric railway and truck data are estimates. Waterway statistics are from the *Report* of the Chief of Army Engineers, Vol. II, 1933, except for coastwise and intercoastal components, which are from *Statistical Abstract of U. S.*, Bureau of Foreign and Domestic Commerce, Dept. of Commerce.

The nature of these statistics may be commented upon briefly. The waterway figure differs somewhat from similar statistics appearing elsewhere,[2] in that coastwise,[3] intercoastal, and Greal Lakes traffic has been included, while local harbor traffic of the lake and ocean

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[1] For a discussion of the traffic of the federal barge line prior to 1931, see John D. Sumner, "An Analysis of Mississippi River Traffic: 1918-1930," 7 *Journal of Land & Public Utility Economics* 355-366 (November, 1931) and 8 *Ibid.* 11-23 (February, 1932).

[2] Cf. those of the Coordinator of Transportation and the Interstate Commerce Commission, appearing in the Coordinator's *Regulation of Transportation Agencies* (Washington, 1934) and elsewhere, and the figure for domestic waterway traffic in the *Statistical Abstract of the U. S.*

[3] Excluding, however, that between the mainland and various non-contiguous territories of the United States.

ports has been excluded. The result is a waterway traffic figure that approximates domestic intercity traffic, whether that traffic be carried over lake, river, canal, or ocean waterways. The amount of intercity motor traffic is only an estimate, inasmuch as comprehensive trucking statistics are not available, and is taken from the Coordinator of Transportation's *Regulation of Transportation Agencies*.[4] It is unfortunate that more recent reliable estimates are not available for, of course, the comparative position of the several types of transport has changed considerably since 1932. Some idea of the changes may be gained from Table III, which will be discussed subsequently.

Statistics of tonnage volume are in many respects less desirable than ton-mile measurements. Unfortunately, comparable ton-mileage statistics are not available for the intercoastal and coastal waterway traffic and only estimates are to be had of truck, pipe line, and electric railway traffic. Available ton-mileage statistics, however, do show a substantially different situation than that shown by Table I. The data for 1932, the composition of which differs somewhat from those in Table I, indicate these differences and are taken chiefly from *Regulation of Transportation Agencies*[5] (Table II).

It is clear that the longer average haul characteristic of both railroad and Great Lakes traffic materially enhances their position relative to that of the motor truck. In contrast with the poor showing of "inland waterway" traffic, including in this case only domestic "rivers, canals and connecting channels" other than those of the Great Lakes, the coastwise and intercoastal ton-mileage would undoubtedly make a much more impressive showing. The average for inland waterway traffic conceals widely divergent conditions. The average haul on the New York canals and on the Mississippi River is long, while the heavy coal traffic around Pittsburgh, for example, moves for short distances.

Changes in Traffic Volume. The comparative stability of the traffic volume of the several carriers during the past eight years is shown in Tables III and IV. The lack of adequate ton-mileage data is less important here; the short-time interval involved would probably produce few major shifts in average length of haul. Motor carriers are necessarily omitted from the compari-

[4] *Op. cit.*

[5] Except for the tonnage for "Rivers, Canals and Connecting Channels" which is taken from the *Statistical Abstract of the U. S.* This figure excludes traffic on the Detroit River and the St. Mary's Falls Canal which is included in the Great Lakes traffic. The Coordinator's *Report*, by including such traffic in the figure for "Inland Waterways" as well as in the Great Lakes traffic, erroneously influences the percentage distribution of tonnage and likewise exaggerates the short-haul character of waterway traffic. The latter result was produced by increasing the tonnage volume which was offset against a ton-mileage figure that is exclusive of the Great Lakes connecting channels.

TABLE II. TON-MILEAGE DATA FOR PRINCIPAL FREIGHT TRANSPORT AGENCIES, 1932

Agency	Tons (000 Omitted)	Per Cent of Total	Ton-Miles (000 Omitted)	Per Cent of Total
Steam railroads	678,854	55.9%	235,308,521	73.9%
Great Lakes	39,544	3.3	24,733,878	7.8
Pipe lines (petroleum)	80,029	6.6	19,600,000	6.2
Intercity trucks	299,768	24.7	29,976,800	9.4
Rivers, canals and connecting channels	103,829	8.5	7,904,910	2.5
Electric railways and airplanes	11,661	1.0	583,260	.2
Total	1,213,685	100.0%	318,107,369	100.0%

TABLE III. FREIGHT TRAFFIC, PRINCIPAL MEDIA OF DOMESTIC TRANSPORT, 1928-35[a]
(In Thousands)

Year	Class I Railways (Tons)	Pipe Lines (Bbls.)	Waterways (Tons)	Electric Railways (Dollars of Revenue)
1928..	1,285,943	1,053,191	339,971	$38,101
1929..	1,339,091	1,156,351	371,389	38,042
1930..	1,153,197	1,172,165	329,625	31,162
1931..	894,186	986,953	288,554	23,719
1932..	646,223	1,120,848	215,914	17,176
1933..	698,943	1,189,086	270,683	15,365
1934..	765,296	1,213,652	276,272	15,893
1935..	789,624	[b]	293,962	17,376

(a) Data for all save waterways taken from statistical publications of the Interstate Commerce Commission. Source and composition of waterway statistics described in Table V, notes a and b, below.
(b) Not yet obtainable.

son, although some indication of their position is afforded by estimates that the ton-mileage of intercity motor trucks amounted to 5.8% of railroad ton-mileage in 1929, and to 12.7% in 1932.[6] Inasmuch as railroad traffic volume declined nearly ½ during that period, this would mean a slight increase in motor traffic, assuming no appreciable change in the average length of haul.

The railroads (and electric railways) clearly were least able to retain traffic, while pipe lines suffered very little diminution in volume. Waterways occupied a middle position, showing more stability than the railroads but considerably less than that of pipe lines. The index for waterways conceals widely different situations, as will be shown later.[7]

Certain causal factors underlying the changes disclosed in Tables III and IV may be pointed out without, however, attempting a full analysis. Some of these factors are long-run, or secular, in character while others are essentially short-run. There are numerous illustrations of the secular forces operating in transportation, forces which are largely, although by no means entirely, competitive in character. The post-war renaissance of inland waterway commerce,[8]

TABLE IV. INDEX NUMBERS OF FREIGHT TRAFFIC, PRINCIPAL MEDIA OF DOMESTIC TRANSPORT, 1928-35
(Average of 1928-30 = 100)

Year	Class I Railways	Waterways	Pipe Lines	Electric Railways
1928..	102.1	98.0	93.4	106.5
1929..	106.3	107.0	102.6	106.4
1930..	91.6	95.0	104.0	87.1
1931..	71.0	83.2	87.6	66.3
1932..	51.3	62.2	99.4	48.0
1933..	55.5	78.0	105.5	43.0
1934..	60.8	79.6	107.7	44.4
1935..	62.7	84.7	.....	48.6

(b) Based on Table III.

fostered in considerable measure by governmental policy, was far more important than is often realized. The secular growth of the oil and gasoline pipe line industry has been a fairly continuous one throughout the 60 years of its life. Even the depression did not halt entirely the expansion in plant investment, which for interstate pipe lines stood in 1935 at more than $763,000,000 in comparison with $741,000,000 in 1929.[9] Transportation of gasoline to marketing points by pipe line has grown rapidly since 1930.[10] This growth in the pipe line industry has been attributable in part to a rise in the demand for the product and in part to substitution for railroad transportation. In the case of the New York Barge Canal, however,

[6] *Report of Federal Coordinator of Transportation, 1934* (Washington, 1935), p. 5.
[7] See Tables V and VI below.
[8] The general record is available in Moulton and Associates, *The American Transportation Problem* (Washington: Brookings Institution, 1933) and elsewhere. For recent studies of particular waterways see: two studies of the Corps of Army Engineers and the United States Shipping Board, *Transportation in the Mississippi and Ohio Valleys*, 1929, and *Transportation on the Great Lakes*, 1930; H. C. Kidd, *Regulation of Intercoastal Commerce* (Pittsburgh, 1932); John D. Sumner, "An Analysis of Mississippi Traffic: 1918-1930," *op. cit.*; John D. Sumner, *New York Barge Canal Traffic* (Buffalo, 1929).
[9] *Statistics of Railroads* and *Pipe Line Companies*, 1936, Interstate Commerce Commission.
[10] See Moulton and Associates, *op. cit.*, p. 707.

the explanation is found largely in successful competition with railroads. Competition is aided by the greater attention to economy caused by hard times.

Aside from secular factors and some short-run competitive situations, the depression record of the several types of transport is largely a function of the stability of the demand for the products comprising their traffic. This short-run factor of demand stability is doubtless principally responsible for the showing of the pipe line industry. Similarly, the instability of Great Lakes traffic reflects the unstable demand for iron ore, coal, and export grain, which items constitute the bulk of Lake commerce. It is important to remember that the demand for freight transportation is entirely derived from the demand for the article or commodity transported.

The Waterway Record. The traffic performance of the principal waterways, presented in Tables V and VI, conforms to no uniform pattern. At one extreme is found the Great Lakes, on which the cyclical record is closely similar to that of the railroads; the New York Barge Canal, on the other hand, has experienced a phenomenal increase in traffic which brings tonnage on that system close to its all-time high.[11] It is interesting that in 1935 tonnage on the Erie division of the Canal, between Buffalo and Albany, exceeded that of all previous years save one.[12]

[11] The highest average annual traffic of the New York canals was reached in the decade of the 1870's, when the average tonnage was 5,600,604 tons annually. It is estimated by the New York Commissioner of Canals and Waterways that the 1936 tonnage will approximate 4,900,000 tons. (*Buffalo Courier Express*, Sept. 28, 1936.)

[12] In 1880 the Erie division appears to have carried

(*Footnote 12 continued on page 395*)

TABLE V. VOLUME OF FREIGHT TRAFFIC OF PRINCIPAL WATERWAYS OF THE UNITED STATES, 1928-35[a]
(In Thousands of Short Tons)

Year	Net Total Domestic Waterway Traffic[b]	All Rivers, Canals and Connecting Channels[c]	Ohio River[d]	Mississippi River[e]	Inland Waterways Corporation	New York Barge Canal System	Great Lakes[f]	Coastwise and Intercoastal[g]
1928	339,971	128,080	20,938	15,520	1,758	3,090	119,301	124,718
1929	371,389	135,174	21,955	11,696	1,575	2,876	135,838	131,990
1930	329,625	132,604	22,337	13,970	1,424	3,605	109,791	122,669
1931	288,554	113,323	18,071	15,628	1,482	3,722	71,788	117,195
1932	215,914	103,829	14,317	14,706	1,573	3,643	39,544	96,217
1933	270,683	116,954	16,751	15,599	1,479	4,074	69,240	114,385
1934	276,272	121,069	18,636	16,038	1,400	4,143	71,795	117,815
1935	293,962	[h]	20,977	[h]	1,732	4,489	83,748	118,187

(*a*) Waterway data, with certain exceptions noted, 1928-35, from *Reports* of or correspondence with the Chief of Army Engineers, U. S. A., Vol. II; 1935 data obtained by correspondence with Chief of Army Engineers. New York Barge Canal data for 1935 were obtained directly from the Commissioner of Canals and Waterways of the State of New York. Statistics for the Inland Waterways Corporation were taken from its *Annual Reports*. Coastwise and intercoastal data, 1928-33, from *Statistical Abstract;* for 1934 and 1935 from *Water Borne Foreign and Domestic Commerce of U. S.*, by U. S. Shipping Board Bureau, Dept. of Commerce.

(*b*) This column excludes coastwise traffic with non-contiguous United States territory and the internal and local harbor traffic of ocean and Great Lakes ports. It includes intercoastal traffic between mainland ports. In other respects it follows the method employed by the *Statistical Abstract of the U. S.*, which deducts the volume of foreign commerce from the net total of water-borne commerce of the United States, which figure excludes all known duplications of reported tonnage. The *Abstract* comments, 1935, p. 392: "Estimated . . . . on the assumption that all the duplications deducted from the grand total (of U. S. water-borne commerce) represent duplications in domestic traffic; there are, however, some minor cases of duplication connected with foreign traffic."

(*c*) This figure excludes Great Lakes traffic passing through St. Mary's Falls Canal and the Detroit River.

(*d*) Between Pittsburgh and the mouth, at Cairo.

(*e*) The 1928 volume is estimated by applying a multiplier to the sum of the traffic of the different sections. The multiplier (84%) is recommended as "conservative" in the 1935 *Report* of the Chief of Engineers, Vol. II, p. 1091. The traffic is that of the River proper, between Minneapolis and New Orleans.

(*f*) These statistics represent the net domestic traffic between Lake ports. In 1934 a very small volume of coastwise traffic from or to Great Lakes ports is included which appears to have been excluded in prior years.

(*g*) Excluding traffic with non-contiguous United States territory.

(*h*) Statistics not yet obtainable.

TABLE VI. INDEX NUMBERS OF FREIGHT TRAFFIC VOLUME, PRINCIPAL WATERWAYS OF THE UNITED STATES, 1928-35[a]
(Average of 1928-30 = 100)

Year	Net Total Domestic Waterway Traffic	All Rivers, Canals and Connecting Channels	Ohio River	Mississippi River	Inland Waterways Corporation	New York Barge Canal System	Great Lakes	Coastwise and Intercoastal
1928.....	98.0	97.1	96.3	113.0	110.8	96.9	98.1	98.6
1929.....	107.0	102.4	101.0	85.2	99.3	90.2	111.7	104.4
1930.....	95.0	100.5	102.7	101.8	89.8	113.0	90.3	97.0
1931.....	83.2	85.9	83.1	113.8	93.4	116.7	59.0	92.7
1932.....	62.2	78.7	65.8	107.1	99.2	114.2	32.5	76.1
1933.....	78.0	88.6	77.0	113.6	93.3	127.7	56.9	90.5
1934.....	79.6	91.8	85.7	116.8	88.3	129.9	59.0	93.2
1935.....	84.7	.....	96.5	.....	109.2	140.7	68.8	93.5

(a) Based on Table V.

A word of explanation is necessary to an understanding of the character of the several series. All data represent net amounts, that is, duplications arising from reporting the same tonnage in more than one section of a waterway have been eliminated wherever possible. There is overlapping, however, between certain of the series; for example, most tonnage of the Inland Waterways Corporation, or federal barge line, is included in that of the Mississippi River, and the statistics for "all rivers, canals and connecting channels" include virtually all waterway tonnage reported under the other headings, except for the Great Lakes and part of that reported as coastwise or intercoastal. The net total domestic traffic, inclusive of all the other series, excludes local harbor traffic and is thus a measurement of total domestic "intercity" waterway tonnage.

The traffic of all the waterway groups, except the Great Lakes, reflects the secular upturn in waterway traffic during the post-war period. This renaissance of traffic is not attributable to any one factor, nor is it possible quantitatively to evaluate the significance of the numerous contributing causes. The following are causes of major importance although their significance varies with the several waterways:[13] (1) One cause is the improvement of channels. Over a long period of years large expenditures have been made by both state and Federal governments. The improved New York canal system was opened in 1918; the State of Illinois carried out an Illinois River project which finally in 1933 culminated in a usable channel between Chicago and the Mississippi River. The Federal Government has conducted extensive projects, especially on the Mississippi, Ohio, and Missouri rivers. A nine-foot channel for the Ohio River was declared opened in 1929, and work is progressing on channels of nine and six feet on the upper Mississippi and Missouri rivers, respectively. The account is a long one; suffice it to say here that such improvements have been extensive and have been pressed with

(*Footnote 12 continued from page 394*)

4,608,651 tons; the next largest tonnage (prior to 1935) occurred in 1887, when 3,840,513 tons were transported. Erie tonnage in 1935 was 3,898,506 and that of 1936 will be appreciably greater. The discrepancy between the amount recorded for 1880 and all other years of the period is so great as to cast doubt upon the former, particularly since statistics for that year are not in order and the old records have been lost. See *Annual Report*, 1930, Commissioner of Canals and Waterways (Albany, 1931), p. 35.

[13] See John D. Sumner, *Recent Developments in Mississippi River Transport*, a doctoral dissertation at Northwestern University, Evanston, 1931, for a discussion of the following and related factors.

especial vigor during the post-war period. Total federal expenditures between 1890 and 1931 for navigation improvement and maintenance of the Mississippi River System are estimated to be in excess of $472,000,000.[14] While, because of the problems of joint cost produced by the relation between flood control and navigation purposes, such allocations may be viewed with skepticism, the magnitude of federal operations in fostering river transport is none the less apparent. (2) A second cause is the development of improved terminals and floating equipment. Here, too, the government has supplied initiative and funds necessary to provide efficient modern terminals, and safer and more economical equipment designed to operate successfully upon our shallow inland rivers. Localities have contributed funds to terminal development, while the federal barge line has been instrumental in the development of both floating equipment and terminals. Progress in these directions has come almost entirely since 1918. (3) Rail-water interchange and joint rates have been a contributing factor. The development of traffic interchange between railroads and carriers by waterway and the establishment of joint rail-water rates progressed rapidly under the impetus of Congressional enactments, Interstate Commerce Commission decisions, and federal barge line initiative. As Coordinator Eastman has pointed out:[15]

"Those operating in the Mississippi Valley could hardly survive were it not for the comprehensive system of joint rail-barge rates, differentially lower than the corresponding all-rail rates, which the Commission has required, and its regulation of the divisions of those rates. The common-carrier coastwise and Great Lakes lines have derived similar benefits from joint rates with the railroads. The intercoastal and other water carriers have profited from the Commission's administration of the so-called 'long-and-short haul provision' of the law."

(4) Government operation of common-carrier service has also helped to increase waterway traffic. The federal Inland Waterways Corporation, under Congressional subsidization, has been an active medium for experimentation in and development of the requisites of increased inland waterway traffic. (5) Finally, changes in production and distribution have exerted considerable influence in the case of certain industries. For example, the development of oil fields in Louisiana and the practice of maintaining iron and steel inventories at distribution points accessible by waterway, have been factors in traffic growth. Of course, such changes are in part results of other waterway developments rather than independent causes of increased traffic.

The Inland Waterways Corporation. The federal barge line has maintained a fairly regular volume of business for the period under consideration, as shown in Table VII.

The operations of this federal corporation have changed materially during the period. In 1932 it established service over the Illinois waterway project, a service which was extended to Chicago in 1933. In 1935 a schedule was inaugurated on the Missouri River to Kansas City. It seems clear that the ability of the corporation to bring its total traffic almost to the record set in 1928[16] is in considerable measure traceable to the tonnage from these new operations.[17]

[14] Compiled by Moulton and Associates (*op. cit.*, p. 438) from the *Annual Reports* of the Chief of Army Engineers.

[15] *Report of the Federal Coordinator of Transportation*, 1934, p. 13.

[16] In that year the barge line tonnage reached its highest point to date.

[17] This is less true than appears superficially, for an indeterminate portion of the traffic on the new parts of the system would have been transferred between

(*Footnote 17 continued on page 397*)

TABLE VII. TRAFFIC VOLUME OF INLAND WATERWAYS CORPORATION, 1928-35[a]
(Short Tons)

Year	Net Total[b]	Lower Mississippi[c]	Upper Mississippi[d]	Illinois River[e]	Missouri River[f]	Warrior River[g]
1928	1,758,244	1,435,560	119,648	.....	.....	317,389
1929	1,575,229	1,292,876	105,950	.....	.....	254,555
1930	1,424,477	1,149,864	105,494	.....	.....	235,266
1931	1,481,751	1,170,317	79,726	.....	.....	283,872
1932	1,572,869	1,292,983	104,185	63,033	.....	255,920
1933	1,479,157	1,206,302	144,585	167,536	.....	254,943
1934	1,400,406	1,127,808	148,068	286,816	.....	208,449
1935	1,732,059	1,412,516	240,215	346,097	24,866	200,283

(a) Computed from *Annual Reports*, Inland Waterways Corporation.
(b) Excluding interdivisional traffic.
(c) The traffic of this sector is adjusted to include that of the Illinois River for all years.
(d) The River above St. Louis.
(e) This sector was opened to Chicago in June, 1933.
(f) Between Kansas City and St. Louis.
(g) From a point near Birmingham, Alabama, on the Warrior River, to New Orleans.

Despite constant expenditures on channel maintenance and improvement, delays from low water continue to harass barge line operations, especially on the upper Mississippi where operation was suspended for about three months in 1934, and on the recently opened Missouri River channel.[18] Likewise, the Corporation's *Reports*[19] contain references to the loss of traffic in sugar, cotton, sulphur, coffee, rice, tobacco, iron and steel, and numerous other commodities because of rate reductions by railroads. The traffic manager of the barge line complains of numerous rail rate reductions in which "we were not permitted to join . . . on a differential basis and were totally eliminated from any possibility of participating in the traffic...." The railroads, on the other hand, complain bitterly of reductions made by the barge line in port-to-port rates. Joint rail-water rates and the division of revenues therefrom are under the jurisdiction of the Interstate Commerce Commission, while all-water rates are not subject to regulation. The joint rates for years have occasioned sharp controversy as to the proper division of revenues and the reasonableness of the differential to be permitted between the all-rail and the lower rail-water charges. The problem has been treated in numerous discussions and recently the Commission has conducted an intensive investigation of these relationships.[20]

Conclusion. The past eight years provide interesting contrasts in both the secular and cyclical position of the principal agencies of domestic freight transport. The waterways, trucks, and pipe lines, with certain exceptions noted in the text, have shown greater ability to resist the inroads of depression than have the steam and electric railways. To governmental policy may be attributed a substantial share of the secular strength demonstrated by the waterways. The explanation of traffic changes in the case of all carriers is found partly in long-run factors of growth or decline. These have to do with the substitution of one transport agency for others, and with changes in the demand for transportation service as such. Short-run considerations, including cyclical changes in demand for commodities and temporary competitive shifts between agencies, are at least equally important.

(*Footnote 17 continued from page 396*)
rail and barge at St. Louis or Cairo had the extended water service not been inaugurated.

[18] See comments in the *Annual Report*, Inland Waterways Corporation, 1935, and in the *Reports* of other years.

[19] *Annual Report*, 1933, p. 26.

[20] Docket No. 26712, *Rail and Barge Joint Rates*.

Alienation of the Federal Domain in Canada

By J. A. MAXWELL*

IN 1869 the Dominion of Canada acquired from the Hudson's Bay Company as a federal domain the vast territory lying north of the United States boundary and between the Province of Ontario and the Rockies. It administered this area as a federal domain for 60 years, alienating some 111,660,000 acres. Public policy toward the domain in Canada was, in many respects, strikingly similar to that of the United States. In both countries the aim was to promote colonization, and for this purpose large grants were made to settlers as free homesteads and to railway companies in order to stimulate construction. And it should be remembered that the greater part of such alienations in Canada were sequels to what had been done in the United States. In 1871, when the policy of land grants to railways was halted in the United States, it was about to be adopted in Canada. Railway promoters who desired this type of government bounty turned from Washington to Ottawa. Indeed, not a few of the great figures in Canadian railway history got their early experience in the United States. The homestead policy of Canada was also a sequel to that of the United States. Canada in 1872 opened its public domain to free settlement as had the United States 10 years earlier. But settlement lagged much farther behind. Only toward the close of the century, when good land open to homesteading was no longer abundant in the United States, did the stream of immigration turn to the Canadian prairies. It is, however, clear that the western movement was a social phenomenon which surmounted national boundaries.

The area which the Dominion acquired as a domain in 1869 was virtually unsettled, and its sparse population had no experience with democratic institutions. A territorial form of government seemed suitable to its needs. But the officials sent in by the Dominion to take possession were met by insurrection, and partly for the sake of peace the small province of Manitoba (comprising at first only 13,500 square miles) was set up. But Manitoba was not given control of the domain within its boundaries. Development and settlement of the West were to be a national responsibility. A homestead policy was to be inaugurated; a railway, subsidized by land grants, was to be built to the Pacific. Federal retention of the domain was, therefore, essential.

When in 1905 the provinces of Saskatchewan and Alberta were formed, the policy was not altered, and at that time there can be no doubt that the West was heartily in favor of federal control. But gradually a feeling developed in the western provinces that federal retention of the domain was unjust. The demand was made not only that the domain be transferred to them, but also that the whole history of federal administration should be examined to see whether their interests as provinces had suffered. At last in 1929 the Dominion acted to quiet this agitation by handing over the unalienated portion of the domain to the Provinces of Manitoba, Saskatchewan, and Alberta in which it was located,[1] and

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[1] Dominion Stats., 1929-30, c's. 29, 41, 3. The actual

(*Footnote 1 continued on page 399*)

by appointing Royal Commissions to complete settlements.[2]

In the United States there has been no similar agitation by the states for cession of the federal domain to them. For a quarter of a century after 1826 the question was, indeed, before Congress and the net result was more liberal grants to the newer states. In more recent years some agitation has come from the western states, but the Taylor Grazing Act has tended to head off any further movement in this direction. In 1931 the Committee on the Conservation and Administration of the Public Domain recommended

"that Congress pass an act granting to the respective public-land States all the unreserved, unappropriated public domain within their boundaries, conditional, however, that in order to make the grant effective the States desirous of accepting it shall so signify by act of legislation."[3]

So far the states have not taken action.

Alienations

It should be understood that Manitoba, established in 1870, had provincial status during almost the whole period of federal control, while Saskatchewan and Alberta were provinces only during the last 25 years.[4] In what follows figures for both the pre-provincial and provincial periods are given, but for brevity reference to alienations in Saskatchewan (or Alberta) will ordinarily mean alienations over the entire period, disregarding the possession or lack of possession of provincial status.

Table I shows total alienations over the whole period 1870-1930, including all acreage which has actually been conveyed, almost entirely by issue of patents.[5] Of the surface alienations 17%

(*Footnote 1 continued from page 398*)

dates of transfer were July 15 for Manitoba, and October 1 for Saskatchewan and Alberta.

The Dominion had also a domain in British Columbia. By the terms of union between British Columbia and the Dominion in 1871, British Columbia agreed to transfer a so-called railway belt of land, stretching 20 miles on either side of the line of the Pacific railway in the Province. This area amounted to 10,976,000 acres. In 1884, after the railway had been built, a further agreement was made by which British Columbia agreed to transfer to the Dominion the so-called Peace River block of 3,500,000 acres. As a concomitant of the transfers in the prairie provinces, the Dominion in 1930 also gave up its domain in British Columbia (Dom. Stat., 1929-1930, c. 37). It returned to the Province approximately 9,600,000 acres in the railway belt and 3,230,000 acres in the Peace River block, having disposed of (by August 1, 1930) about 888,400 acres in the former and 170,400 acres in the latter. In the railway belt 739,000 acres and in the Peace River block 157,200 acres were disposed of as homesteads. It should be mentioned also that, at the date of transfer, 113,000 acres in the former area and 364,900 acres in the latter had been entered for or sold, but not patented. The alienations in British Columbia were, as the foregoing figures show, relatively unimportant, and they are neglected in what follows.

The Dominion retains a public domain in the Northwest Territories and the Yukon, but it has none within the boundaries of a province except for national parks, and Indian, ordinance, and military lands. This latter group comprises 21,979,000 acres, of which 16,469,000 acres are national parks and 5,177,000 acres Indian reserves.

[2] As a result of their work a much more accurate and extensive statement of alienations can now be presented than was possible from the public documents hitherto available. The writer wishes to acknowledge the courteous assistance given him by Mr. R. A. Gibson, Assistant Deputy Minister of the Interior, and Mr. H. E. Hume.

[3] *Report of the Committee on the Conservation and Administration of the Public Domain* (Washington, 1931), p. 2.

[4] The date at which provincial status was achieved was of major significance in the dispute between the Dominion and Saskatchewan and Alberta, because the courts ruled that any injury done to the two provinces by federal alienations of land within their boundaries could be reckoned only from this time. For the purposes of this article the division of alienations into provincial and pre-provincial is of no significance.

[5] At the date of transfer a considerable acreage of land had been entered for or sold, but not patented. The figures in acres (000's omitted) are as follows:

Province	Total	Homesteads	School Land Sales	Other
Manitoba.....	776	460	22	294
Saskatchewan..	4,431	2,585	1,234	613
Alberta.....	4,858	3,804	680	374

Some of these entries and sales will, of course, be cancelled.

TABLE I. ALIENATIONS OF FEDERAL DOMAIN, 1870-1930*

Province	Surface Rights (Acres)		Under-rights (Acres)	
Manitoba		19,136,700		11,565,800
Saskatchewan		54,113,700		19,988,000
Before 1905	15,001,900		12,409,300	
After 1905	39,111,800		7,578,700	
Alberta		38,409,200		15,885,500
Before 1905	14,261,000		11,199,900	
After 1905	24,148,200		4,685,600	
Total		111,659,600		47,439,300

* The figures for surface rights and under-rights are, of course, not to be added together. Under-rights alienated in Manitoba to 1908 amounted to 11,165,790 acres. Alienations since than are *estimated* at 400,000 acres.

were in Manitoba, 49% in Saskatchewan, and 34% in Alberta. It is estimated that some 20,000,000 acres of agricultural land "remained, in 1931, available for settlement"[6] in the West, and of this more than ½ is in Alberta. Thus the bulk of the arable land of Saskatchewan and Manitoba was disposed of under federal administration.

Alienations of under-rights were considerable in amount in all three provinces. From the outset the Crown protected its rights to gold and silver, but according to the common law surface rights carry with them the ownership of the base metals below the surface. As a result, alienation of agricultural land at first meant also alienation of sub-surface rights. But when it was discovered that deposits of coal underlay a considerable area of the West, steps were taken in 1887-89 to reserve to the Crown all minerals in order that they might be disposed of separately. This belated effort was, however, partly nullified by an adverse court decision in 1904 which held that the regulations of 1889 applied only to land alienated for settlement or by sale.[7] This meant that all grants to the Hudson's Bay Company and the greater portion of the grants to railways have carried under-rights.

For many years the only mineral in the federal domain for which there was a demand was coal. In general, the government disposed of coal lands by simple sale until 1907, when these were withdrawn from sale and a policy of leasing was put into effect. The leases ran for 21 years, subject to payment of a rental per acre and a royalty per ton of coal mined.[8] This policy, while giving adequate security for investment of capital, was designed to safeguard the interests of the nation in an important resource.

The policy toward petroleum and natural gas corresponded to that for coal. For many years these were not found in appreciable quantities, and the government sold oil land at $1 per acre, the regular price for Dominion lands. But in 1910, when it seemed that an increased development might take place,

[6] Mackintosh, W. A., *Prairie Settlement, the Geographical Setting* (Toronto: Macmillan Co., 1934), p. 234. Much larger figures are given in the current *Canada Year Books*, but these Mackintosh considers to be "far too large."

[7] Appeal Cases, 1904, *Calgary and Edmonton Railway v. the King*. This decision by the Privy Council reversed the decision of the courts in Canada. See also Hedges, J. B., *The Federal Railway Land Subsidy Policy of Canada*. (Cambridge: Harvard University Press, 1934), pp. 115-6.

[8] Both the amount of the royalty and of the rental have varied from time to time. In 1907 the former was set at 5 cents per ton and the latter at $1 per acre. It may be noted that the Federal Government has uniformly made the boundaries of under-rights consist of the vertical planes of the surface boundaries.

the plan of leasing was substituted for that of sale, although lenient modifications were given to individuals and companies when they were engaged in drilling and exploration. In general, here also the aim was to encourage discovery and development, and then, after deposits had been located, to apply stricter terms which would obtain some share of benefit for the nation.

Alienations of under-rights were of much greater importance in Alberta than in Saskatchewan and Manitoba. In the two latter provinces, measured in terms of acreage, the totals are large, but in terms of mineral quantity and value the case is otherwise, because only in Alberta were the deposits of coal, oil, and natural gas—the important minerals—of significance.

Settlers

Consider next the purposes for which the alienations were made. As Table II shows, more than ½ the acreage (51.5%) went to settlers. Of the 57,538,200 acres so alienated, 90% were as homestead grants, and the remainder as preemptions and purchased homesteads.[9] The homestead policy whereby settlers, subject to payment of an entry fee and fulfillment of certain conditions of residence, were given 160 acres of land, was in effect continuously after 1872.

Viewing the whole 60 years, alienations of homesteads in Saskatchewan exceeded in amount those of Manitoba and Alberta together. But Chart I,

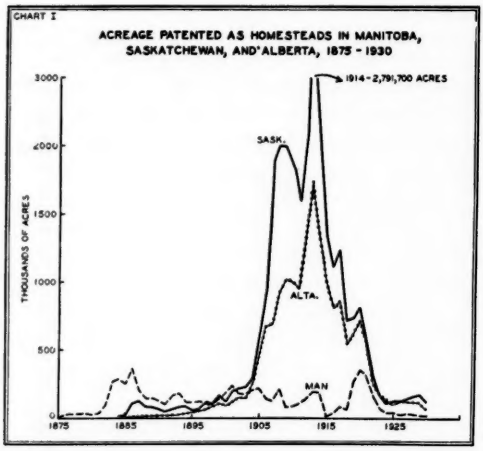
[9] Between 1872-90 and 1908-18 a settler was permitted, within a limited area and subject to certain conditions of residence, to purchase a quarter-section adjoining his homestead at a price of $3 per acre. In approximately the same years and again in a restricted area and subject to conditions of residence, a settler was permitted to purchase a homestead, first at $1 and later at $3 per acre. For a discussion see Maxwell, W. R., *The Land Policy of the Canadian Federal Government* (unpublished doctoral thesis, Harvard University, 1926), pp. 37-42.

TABLE II. ALIENATIONS OF DOMAIN (UNDER-RIGHTS IN BRACKETS) BY PURPOSES, 1870–1930*

(In thousands of acres)

	Settlers	Railways	Hudson's Bay Co.	Sales	Miscellaneous	Total
Manitoba	7,704.3	3,551.5	1,280.0	3,960.9	2,640.0	19,136.7
	(2,919.6)	(3,552.0)	(1,280.0)	(2,773.5)	(1,040.7)	(11,565.8)
Saskatchewan	31,102.1	15,198.1	2,820.8	2,251.5	2,741.2	54,113.7
	(1,185.0)	(15,026.8)	(2,820.8)	(626.9)	(328.5)	(19,988.0)
Before 1905	2,792.7	9,084.8	1,576.0	867.4	681.0	15,001.9
	(1,103.0)	(8,827.2)	(1,576.0)	(608.2)	(294.9)	(12,409.3)
After 1905	28,309.4	6,113.3	1,244.8	1,384.1	2,060.2	39,111.8
	(82.0)	(6,199.6)	(1,244.8)	(18.7)	(33.6)	(7,578.7)
Alberta	18,731.8	13,125.4	2,213.1	2,095.3	2,243.6	38,409.2
	(149.2)	(12,950.8)	(2,213.1)	(384.4)	(188.0)	(15,885.5)
Before 1905	1,605.4	10,728.6	1,196.3	354.3	376.4	14,261.0
	(144.0)	(9,541.5)	(1,196.3)	(152.2)	(165.9)	(11,199.9)
After 1905	17,126.4	2,396.8	1,016.8	1,741.0	1,867.2	24,148.2
	(5.2)	(3,409.3)	(1,016.8)	(232.2)	(22.1)	(4,685.6)
Total	57,538.2	31,875.0	6,313.9	8,307.7	7,624.8	111,659.6
	(4,253.8)	(31,529.6)	(6,313.9)	(3,784.8)	(1,557.2)	(47,439.3)

* The figures for Saskatchewan and Alberta were very carefully checked by officials of the Department of the Interior and they are not likely to be improved. Those for Manitoba are less reliable. For the years up to 1908 a careful check has been made, but from 1908 to 1930 the figures have been taken from the Annual Reports of the Department which do not take account of cancellations of patents and of revestments. But the error cannot be of much significance.



which shows the approximate acreage patented as homesteads by years, as well Table III, brings out certain striking facts. Three different periods are evident: one of slow development up to the 20th century, a short period of boom, and finally one of decline. In the first period, covering 35 years, only 14% of the alienations occurred and of these nearly ½ were in Manitoba. For that province more lands were patented as homesteads in 1886 than in any later year. But in the second period there was a dramatic change. In 15 years over five times as much acreage was patented as homesteads as in the preceding 35. Alienations in Manitoba, however, were relatively insignificant, while those in Saskatchewan and Alberta were of tremendous importance because of the heavy and sudden surge of settlement into them.[10] In the final decade the boom was over. The best land had been taken, agriculture was not prosperous, many of the settlers drifted away from their lands without obtaining title, and the number of homestead entries in most years was less than the number of cancellations.

Railways

Alienations to railways amounted to 31,875,000 acres, over ¼ of the total. Of this only 11% was located in Manitoba, while 48% was in Saskatchewan and 41% in Alberta. It should be remembered also that in this instance under-rights as well as surface rights were alienated,[11] because the policy of retaining under-rights had not been formulated when most of the commitments to railways were made, and was, besides, ineffective for years afterwards.

Table IV gives the alienations by railways. As is well known, the Canadian Pacific Railway got by far the largest land grant in order to assist it in constructing a transcontinental line. Its 19,816,000 acres were over 62% of the total grants to railways. The remainder was given to nine lines, but five of them[12] were absorbed by the Canadian

[10] The dates at which patents were issued do not, of course, coincide with settlement, because a homesteader would have to settle on his homestead at least three years before a patent would be issued to him.

[11] In a few cases under-rights alone were alienated, and vice versa, but the statement is generally correct.

[12] The Calgary & Edmonton, the Great Northwest Central, the Manitoba and Northwestern, the Manitoba Southwestern Colonization, and the Saskatchewan and Western.

TABLE III. APPROXIMATE PERCENTAGE DISTRIBUTION OF LANDS ALIENATED AS HOMESTEADS

Period	Manitoba	Saskatchewan	Alberta	Total	Manitoba	Saskatchewan	Alberta	Total
1871–1905.....	49%	32%	19%	100%	55%	9%	8%	14%
1906–1920.....	5	59	36	100	30	79	77	72
1921–1930.....	14	50	36	100	15	12	15	14
	13%	54%	33%	100%	100%	100%	100%	100%

TABLE IV. LANDS CONVEYED TO RAILWAY COMPANIES BY THE DOMINION*

Railways	Manitoba (Acres)	Saskatchewan (Acres)	Alberta (Acres)	Total (Acres)
Canadian Pacific, Total	2,198,600	7,812,200	9,837,700	19,816,000
Main Line	2,183,100	6,216,700	9,837,000	18,207,000
Souris branch	15,500	1,395,700	200	1,408,700
Pipestone extension	.....	199,800	500	200,300
Alberta Railway & Irrigation	.....	5,500	1,204,000	1,101,700
Calgary & Edmonton	.....	13,500	1,813,300	1,820,100
Great Northwest Central	5,700	313,600	600	320,000
Manitoba Northwestern	424,100	1,071,900	.....	1,501,400
Manitoba Southwestern Colonization	530,100	542,800	319,600	1,396,800
Saskatchewan & Western	.....	98,900	.....	98,900
Canadian Northern	356,300	3,060,000	6,000	3,422,500
Manitoba & Southeastern	36,600	643,000	200	680,300
Qu'Appelle, Long Lake & Saskatchewan	.....	1,624,600	.....	1,624,200
Total	3,551,500	15,198,100	13,125,400	31,781,800

* Discrepancies in the totals occur because small revestments before 1905, for which details by railways are not available, are not deducted, and because a small acreage for rights-of-way is not included.

Pacific, and two[13] by the Canadian Northern.

Appraisal of the alienations in aid of railways is not yet possible. It is, however, the judgment of a competent student that the action of the Dominion in making grants to the Canadian Pacific Railway has been justified by subsequent events. A transcontinental line was built and the Canadian Pacific Railway engaged in a settlement policy with energy and success.[14] Alienations to other companies have achieved mixed results, but in the main the grants to the smaller colonization railways were mistakes.

The Hudson's Bay Company

As a condition in the deed of surrender of 1869, the Hudson's Bay Company was entitled to "claim in any township or district within the fertile belt in which land is set out for settlement, grants of land not exceeding 1/20 of the land so set out," to be selected by lot. The Dominion lands act of 1872 specified how this was to be carried out,[15] and under it a total of 6,313,900 acres (both surface and underrights) passed to the Company. Of this 45% was in Saskatchewan, 35% in Alberta, and 20% in Manitoba.

Sales

Under the heading of sales a variety of items has been included, of which the most important is school lands. In 1872 by the Dominion lands act provision was made that sections 11 and 29 of every township in Manitoba and the territories should be set aside as an endowment for schools, although complete control was kept by the Dominion. Sales were to be made by auction, and the proceeds were to be invested in Dominion securities. The income from these, less costs of adminis-

[13] The Manitoba & Southeastern and the Qu'Appelle, Long Lake and Saskatchewan.

[14] Professor Hedges has this to say about the Canadian Pacific: "In one respect, the work of the Canadian Pacific was unique among land grant railways in North America. Other companies sold land; the Canadian Pacific actually colonized it." (*Op. cit.*, p. 121.) This monograph contains very instructive comparisons between railway land subsidy policy in the United States and Canada. See also Martin, Chester, "The Railway Land Grant System in Western Canada," *Canadian Historical Association Report*, 1934, pp. 78-9.

[15] The Company was to receive section 8 in each township, when surveyed, and the whole of section 26 in each township whose number is divisible by five, and the southern half and northwest quarter of section 26 in all other townships.

tration, was to be paid over to the government of the province or territory for school purposes. The school land sales actually patented by 1930 were as follows:[16]

Manitoba	593,300 acres
Saskatchewan	876,200 acres
Alberta	563,200 acres

But school lands were sold on a 10-year basis and as a result a considerable acreage—47,900 acres in Manitoba, 1,233,600 acres in Saskatchewan, and 679,900 acres in Alberta—had been sold for which patents had not been issued. Some of this acreage (perhaps 40%) will revert to the Crown.

Both the conception and the execution of the school lands scheme must be approved. The Dominion, despite provincial protest, made few sales until settlement of the West was well advanced. It sold at opportune times and at high prices—an average of $16 per acre on net sales in Saskatchewan and Alberta. The land was sold on a time basis—10% in cash and the rest in nine instalments with interest at 6%, and the Dominion did not pursue an aggressive policy about collections. As a result many purchasers got in arrears and many sales were cancelled. On the other hand, administrative costs were low. Upon relinquishment of the domain the Dominion turned over school lands funds amounting to $5,920,000 for Manitoba, $17,809,000 for Saskatchewan, and $9,564,600 for Alberta. It also bound the provinces to continue to administer the unalienated school lands for the support of schools.

The other items grouped as sales do not merit attention.[17] It is to be assumed that the Dominion, in most cases, sold them on a commercial basis and for an adequate revenue.

Miscellaneous

Under this heading two items—half-breed grants and soldier-grants—should be explained. The Dominion from the beginning recognized an obligation toward the half-breeds, as well as toward the Indians in the Northwest. As treaties were signed with the Indian tribes, provision was also made for the issuance to each half-breed (born before 1885) of cash scrip for $240, or land scrip for 240 acres of land. By the land scrip a total of 2,707,100 acres of land was alienated as follows:

Province	Acres
Manitoba	1,518,500
Saskatchewan	761,300
Before 1905—535,700	
After 1905—225,600	
Alberta	427,300
Before 1905—299,000	
After 1905—128,300	

Most of this land was not settled by the half-breeds, but was sold by them to speculators. It is, however, difficult to see how this could have been avoided.[18]

Land was alienated as soldier grants principally to South African War veterans and to veterans of the Great War. In the former case the veteran was entitled to two quarter sections, issued in the form of scrip. The scrip was transferable and much of it, especially when

[16] In Manitoba 137,500 acres had been patented before 1905, but only 3,100 acres in Saskatchewan and 1,500 acres in Alberta.

[17] In the case of Manitoba 850,100 acres of swamp lands, sold by the Provincial Government, have been included. These lands were handed over by the Dominion to the Province at various times between 1887 and 1912, but in 1912 the transfers were stopped and the unalienated swamp lands in the control of the Province were retransferred to the Dominion. Nothing of the sort was ever done for Saskatchewan and Alberta, and for the sake of comparability the figures for Manitoba have been added to the sales.

[18] In Manitoba some 472,600 acres in addition were granted through the act creating the province in order to quiet the titles of residents already occupying land.

issued to veterans not domiciled in the West,[19] was sold. But it is to be observed that the possessor of the scrip had, before he secured possession of the land, to fulfill all conditions required of a homesteader. Alienations were as follows:

Manitoba	8,000 acres
Saskatchewan	1,199,900 acres
Alberta	1,017,300 acres
Total	2,225,200 acres

Veterans of the Great War were allowed free entry to a quarter-section (not issued in the form of negotiable scrip), subject to the regular services incident to a free homestead. The scheme was thus a special phase of the settlement policy of the Dominion. In addition, special grants were made to soldiers who made application through the Soldier Settlement Board. Alienations to veterans were approximately as follows:

Manitoba	232,500 acres
Saskatchewan	561,500 acres
Alberta	645,200 acres
Total	1,439,200 acres

It should also be noted that about 131,700 acres in Manitoba, 96,000 acres in Saskatchewan, and 130,600 acres in Alberta had been entered for or sold to veterans, but not patented by 1930.

Dominion Expenditure on and Revenue from the Domain

Since 85% of the alienations of domain in Manitoba, Saskatchewan, and Alberta went as grants to settlers, railways, and the Hudson's Bay Company, it is obvious that figures for Dominion revenue from the domain are of little significance. From a homesteader the Dominion obtained only an entry fee of $10, and from a preemptor $3 an acre. Sales were, of course, on a commercial basis, but from the most important item, school lands, the proceeds were not a part of federal revenue. From grazing, timber, and mining land the Dominion received rentals, fees, and royalties, but the amounts were not large. On the other hand, it is difficult to know what expenditure to charge against the domain. It will suffice to take the figures from the public accounts without attempt at refinement. These show an expenditure on ordinary account, 1873-1930 inclusive, of nearly $109,000,000, including therein the cost of civil government (mostly salaries of the Department of the Interior at Ottawa) and expenditure for administration of the Dominion lands. The revenue obtained was nearly $95,000,000.[20] Some of the expenditure included above would doubtless have been made by the Dominion even if it had not been in control of the domain, but roughly it appears that the Dominion had a deficit of some $14,000,000, not including its expenditure for land subsidies.[21]

The Subsidies in Lieu of Land[22]

Although federal policy regarding the public domain in Canada has obvious

[19] The scrip could be taken up by non-residents only in Saskatchewan and Alberta.

[20] Revenue from school lands not included.

[21] These subsidies, which were not discontinued after the transfer of the lands, were as follows:

Manitoba, 1882-1930	$11,804,000
Saskatchewan, 1905-1930	14,200,000
Alberta, 1905-1930	12,750,000
Total	$38,754,000

The various Royal Commissions, appointed to deal with the natural resources question, have endeavored to apportion by provinces the Dominion expenditure on and revenue from the domain, and to exclude from the figures those expenditures and revenues which were for Dominion, as distinct from provincial, purposes. But satisfactory results were not obtained and in any case the distinction is not pertinent here.

[22] See Maxwell, J. A., "The Dispute over the Public Domain in Canada," 41 *Journal of Political Economy* 777-805 (December, 1933).

similarities to that in the United States, one feature was distinctly unique. The Dominion Government has given annual cash subsidies to the provincial governments, avowedly as compensation for retention of the domain under federal control.

A subsidy in lieu of land was given for the first time in 1871. Then British Columbia was allowed $100,000 a year, ostensibly "in consideration of" the promise of the provincial government to transfer to the Dominion a belt of land extending for 20 miles on either side of the Pacific Railway. In reality there was no essential connection between the subsidy and the land. The $100,000 a year was merely an extra inducement to bring British Columbia into the union. In 1873 Prince Edward Island, upon entering the union, was given a subsidy of $45,000 a year because it held "no lands from the Crown," and again the grant was a fiscal device. But both of these supplied precedents and in 1882 Manitoba was given $45,000 a year (increased to $100,000 in 1885) in lieu of land. When Saskatchewan and Alberta were made provinces in 1905 a still more generous land subsidy, varying with population, was given to them as follows:

Population	Annual Subsidy in Lieu of Land
Under—400,000	$ 375,000
400,000—800,000	562,500
800,000—1,200,000	750,000
1,200,000 and over	1,112,500

At once Manitoba felt aggrieved and, after its boundaries had been extended in 1912, it was put upon an equality with them in land subsidy.

Both in origin and in development the so-called subsidy in lieu of land was a fiscal device. Its amount was determined by the necessity of meeting a real or assumed fiscal need on the part of a suppliant provincial government and it was in no sense a calculated equivalent for federal retention of the land. But its existence undoubtedly gave plausibility to an agitation which came to be called "the natural resources question." In the West the opinion grew up that federal retention of the western domain was unjust. Gradually the agitation broadened until the demand was made not merely that the Dominion should transfer to Manitoba, Saskatchewan, and Alberta the unalienated domain within their boundaries, but also that the subsidy in lieu of land should be continued without diminution. For years these claims were ignored, but in the post-war period a series of political accidents made this attitude no longer possible, and the Federal Government agreed to transfer the unalienated domain and to appoint Royal Commissions to report upon what financial consideration, if any, was due to the provincial governments because of federal control and alienation of the lands of Manitoba from 1870 to 1930, and of Saskatchewan and Alberta from 1905 to 1930.

The Royal Commission for Manitoba was appointed first, and in 1929 made its recommendations. The Federal Government, after it had handed over the domain, was to pay, in the future as in the past, annual grants equal to the subsidies in lieu of land; and it was, in addition, to pay to Manitoba the lump sum of $4,584,200. The Royal Commission gave no satisfactory grounds for these over-generous recommendations. It did not show that Manitoba had suffered a financial loss through federal control of its domain. Nevertheless, the Federal Government accepted and implemented the report. At the same time

it handed over to Saskatchewan and Alberta their domain and agreed to continue payment of the former land subsidy. Five years later, in 1934, two Royal Commissions were appointed to consider whether or not any additional financial consideration was due to Saskatchewan and Alberta. In 1935 they recommended that the Federal Government should pay each the lump sum of $5,000,000. In the light of what had already been given to Manitoba, some such concession was inevitable.[23]

The history of "the natural resources question" is a story of unedifying and intricate legerdemain. An unreasoning agitation grew up, concessions were made to quiet it, and the concessions tended to justify and to stimulate the agitation. It should, indeed, be noticed that, by 1930, the chief purposes for which the Dominion held the domain had been realized, and it may be argued that future settlement and exploitation of the West can best be handled by the provincial governments. But it was not in answer to such arguments that the Dominion transferred the domain and gave financial favors to the western provinces.[24]

Conclusion

Now that federal control of the western domain has ended, it may be asked whether or not its developmental and settlement policy was a success. Only a few general observations can be ventured here.[25] It is fairly clear that, whatever may be the judgment now, most of the policies of the Dominion were strongly endorsed by public sentiment at the time they were instituted. In this respect numerous parallels in the United States can be suggested. Consider the grants to railways. In the United States these were stopped in 1871 because of the cry of monopoly and because of the feeling that they conflicted with the homestead policy. By then the American West had been tapped by a railway network and the farmers had begun to insist that railway rates were excessive. But in Canada in 1871 the West had no railways and few settlers. Conserving the public domain for homesteaders could hardly have been advocated until there was a transportation system to get settlers in and to carry their crops out. And in the 1870's the new Dominion Government could not give much assistance by cash or credit for railway construction in the West. If this construction was to be secured at all—and about this there was a real difference of opinion—everyone felt that generous land grants provided the only feasible method. But after the Canadian Pacific Railway had been built, there arose sharp criticism in the West. As in the United States the charge of monopoly was made and in 1894 the policy of land grants to railways was abandoned. It had, however, served its purpose, and even with the advantage of hindsight, a favorable appraisal can hardly be withheld from it. Nor should it be overlooked that the Canadian Pacific Railway, to which over 60% of this acreage was given, appears to have pursued a settlement policy superior to that of any of the land grant railways in the United States.

[23] The recommendations have not yet been implemented by legislation.

[24] No attention in Canada has been paid to the injury that may have been done the eastern provinces because of federal control of the western domain. For years the immigration and settlement policy of the Federal Government was designed almost exclusively to bring people to the West. The West was, of course, a virgin area, but the Federal Government accelerated movement into it not only from foreign countries, but from the rest of Canada.

[25] An adequate examination can be expected in a book now in preparation by Morton, A. S. and Martin, Chester, *History of Prairie Settlement and Dominion Lands Policy*.

The homestead policy also was endorsed by public opinion. For many years it was regarded as the cornerstone in the scheme of settlement for western Canada, because there seemed no better way to get settlers on the land at the earliest possible moment. Canada in 1872 had before it the example of the United States and the homestead policy seemed to have built up thriving communities and to have increased the power of the nation. Doubts about the wisdom of free homesteads would, in any case, have been futile. If some part of the stream of settlement was to be diverted from the United States, lands had to be offered to settlers by Canada on at least as good terms. In recent years, indeed, criticism of the homestead policy has been expressed and evaluation in the light of history may disclose unexpected debits. Some land was opened to arable agriculture which should never have been turned by the plow;[26] settlers were allowed to enter upon quarter-sections in areas where a living could not be secured from a farm of that size; agriculture was over-expanded because the government helped too many people to get farms. In short, the homestead policy was not perfect in conception or in execution. But it is impossible to see how any other policy would have been acceptable at the time.[27]

The policy of the Dominion about under-rights seems to have been fairly adequate. The aim was to encourage development while safeguarding the public interest. Separation of under-rights from surface rights was made as soon as the existence of valuable minerals was realized, and a system of long-term leases supplanted sales when expansion of the mining industry in the West seemed imminent. The problems in Canada were much simpler than those of the United States because the mineral resources in the federal domain were less extensive and less valuable. Indeed, it may be said that the Canadian regulations were never subjected to the test of a period of rapid and sustained development.

There has also been criticism of the administration, as distinct from the policies, of the Dominion. The western provinces have asserted that federal officials, domiciled at or directed from Ottawa, were often uninformed about local conditions or neglectful of local interests and that, as a result, there was a significant amount of maladministration.[28] This criticism appears to be of little weight. No doubt administration at long range led to some mistakes, but it is certain that the only alternative—administration by provincial officials—would have led to mistakes at least as serious. Provincial administration of land in Canada has been far from satisfactory. Pressure from local interests has been hard to resist; favoritism and shortsighted policies have resulted. Dominion administration was relatively free from these currents; it was relatively

[26] The recurrent crop failures in the semi-arid district of southern Saskatchewan in recent years have raised the question as to whether this area should have been opened for farming. Serious doubts were expressed by the Department of the Interior at the time, but the government felt itself forced to yield to the pressure of public opinion. (Maxwell, W. R., *op. cit.*, p. 47.)

[27] In appraising the policy of the Federal Government of the United States, Professor Hibbard makes the following statement: "The policy of land grants in the United States had at its heart a simple principle: the great public domain was to be disposed of as quickly as possible in the interests of settlement and in order to encourage the establishment of needed public services" (*Encyclopaedia of the Social Sciences* (New York: Macmillan Co., 1933), Vol. IX, p. 36). The same principle underlay the policy of the Federal Government in Canada.

[28] The criticisms were expressed in the hearings of the Saskatchewan and Alberta Royal Commissions which have not been printed.

disinterested and it, therefore, avoided the most dangerous pitfalls.

In this connection further comparison with the United States may be instructive. The western provinces have directed vigorous criticism against the manner in which the Dominion has handled the school lands. In Canada these lands were not, as in the United States, handed over to provincial (or state) control. The Dominion retained ownership, and after sale of land it managed the investment of the proceeds. As has been indicated, the results obtained were good—much better than could have been anticipated from provincial administration. If the experience of the American states is any criterion, the lands might in such case have often been sold too early, the proceeds might have been badly invested and even diverted to purposes other than education.[29]

The provinces have also criticized Dominion administration of timber lands. The only criticism which seems to have any basis is that the Dominion took too much the long-run view and had too much the national outlook. It, therefore, spent money for forest conservation which the western provinces, in control of their lands, would not have spent. Such criticisms, if admissible at all, are founded entirely upon the fiscal aspects of administration. Even if the provincial budgets suffered slightly, the western provinces as a whole were fortunate that their forests were handled by the Dominion.

The contrast to what was done in the United States is, of course, very striking. In Canada the Federal Government gave only the right to cut timber; in the United States most of the timber lands were sold outright at low prices, timber depredations were very large, and there was much loss from overcutting and from fire. In the opinion of Professor Hibbard, "one of the clearest and most unfortunate failures of the government in its handling of the public domain is that in connection with the timber supply."[30] This costly mistake was not repeated in Canada. Its timber industry developed relatively late and after the conservation movement had gained strength. Both the Dominion and most of the provinces which had control of their domain were able to profit by the mistakes of their neighbor.

There was, indeed, one unfortunate, if inevitable, feature of Dominion control of the western domain. The aim of the Dominion was to settle the West and once land was patented its responsibility ended. But the responsibility of the provincial government had only begun.[31] Roads had to be constructed, schools provided; in short, the provincial government and municipal governments had to assume burdens which they had not created. Sometimes these burdens were difficult to handle, particularly in localities where the most valuable property belonged to the Canadian Pacific Railway and was tax exempt. But such difficulties should not be overstressed. They would have recurred, in modified form, even under provincial administration. Only under a scheme of controlled settlement could they have been averted, and that could hardly have been made effective by any government in western Canada. The settlers desired to locate where they pleased and they would not have acquiesced readily to governmental suggestion.

[29] Knight, G. W., "History and Management of Land Grants for Education in the North-West Territory," 1 *Papers of the American Historical Association* 152-68.

[30] Hibbard, B. H., *A History of the Public Land Policies* (New York: Macmillan Co., 1924), pp. 469-70.

[31] Cf. Maxwell, W. R., *op. cit.*, p. 48.

The Accounting Treatment of Unamortized Discount and Premium in Utility Refunding Operations

By V. CHILDS KLUG*

IN THE past few years, particularly during 1935 and the first half of the present year, many public utility bond issues have been refunded, primarily because of the opportunity afforded by the low cost of money. During 1935 it was restricted very largely to the major operating companies on account of their strong credit positions.[1] As business conditions improved generally throughout the country during the first six months of 1936, smaller companies became more active in refinancing.[2] This will undoubtedly be even more evident during the latter part of this year, if business conditions continue to improve along with a continuation of low interest rates. These conditions enabled many utilities to effect savings in interest charges, after taking into consideration the coupon rate, maturity, underwriters' commissions, incidental expenses, the price and the premium usually paid in retiring the old bond issue before maturity.

In a recent address before the Fourth Annual Convention of the Edison Electric Institute, June 3, 1936,[3] the following important facts were pointed out:

"The dearth of need for new capital could not be better demonstrated than by the experience of the utility bond market in the recent past. In the fourteen months ended April, 1936, $1,510,000,000 of utility bonds have been sold—an amount equal to about a quarter of the entire funded debt of these companies. Yet out of this huge total only $15,000,000, or about 1%, represented new capital, all the rest being merely the refunding at a lower rate of interest of previously existing debt."[4]

The issuance of bonds for the purpose of retiring old issues bearing a higher interest rate, with a resultant saving which reacts to the advantage of the public—both as an investor and as a customer—is to be recommended. The accounting problem involved is concerned with the treatment of the balance remaining in the unamortized discount account, to the best interests of both. In a recent article it was said: "That this question cannot be settled out of hand is apparent from the fact that the public utility commissions of the various states, the authorities most frequently called upon to deal with this question, do not appear to be in agreement on it."[5]

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The original draft of this article was prepared by the author when he was Research Accountant with the Department of Public Service, State of Washington (March, 1936), and since has been enlarged and new material added. This article is submitted by the author in his individual capacity and may or may not reflect the views and opinions of either Commission.

[1] For a complete analysis, see Ostrander, E. D., "Public Utility Financing in 1935," 12 *Journal of Land & Public Utility Economics* 91-94 (February, 1936). See also: Dahl, Lawrence G., "Some Comments on Public Utility Refunding Operations," 12 *Ibid.* 256-263 (August, 1936).

[2] See, Ostrander, E. D., "Public Utility Financing in the First Quarter of 1936," 12 *Journal of Land & Public Utility Economics* 208-210 (May, 1936).

[3] "Part Played by Holding Companies in Rapid Growth of Power Consumption" by C. W. Kellogg, Chairman of the Board, Engineers Public Service Company.

[4] Reprinted from 47 *Annalist* 838 (June 5, 1936).

[5] Freeman, Herbert C., "The Treatment of Unamortized Discount and Premium on Retirement in

(*Footnote 5 continued on page 411*)

In view of these disagreements, together with the history-making epoch of the late utility refunding issues, it seems both highly desirable and necessary to develop definite methods of procedure. The purpose of this paper is to present what is believed to be the best accounting procedure, when considering the equal rights of both the investor and the ratepayer. It is axiomatic that the issuance of utility bonds for the purpose of retiring a like amount of bonds bearing a higher interest rate, with a resultant saving which should react to the equal advantage of both the utility and the ratepayer, is consistent with the public good.

Current Theories

A careful study of the present views on this problem has disclosed to the writer three important and distinct theories for handling the problem. All of them must be given serious consideration before one may depart from any of them to set up a plan which embodies the essentials of the three theories and yet promulgates a workable system that is considered fair and just to all concerned.

1. The ultra-conservative theory is that the remaining unamortized discount on the issue retired, together with the premium paid on retirement, should all be charged to Earned Surplus in the year in which the bonds are retired. Most authorities agree that this method is the conservative practice but many are of the opinion that very often this procedure cannot be justified from an economic or business point of view. That this is so can readily be seen in any instance when a corporation has no Earned Surplus account, or, when it has one that is smaller in amount than the total of the unamortized discount and premium. If this method were adopted it would result in a deficit on the balance sheet of the utility. Such a procedure would in all probability also result in defeating the disposition of the new bonds. It would result in the favorably situated utilities (that is, those having a substantial surplus) being able to refinance, while those less fortunate would not be able to do so, if this ultra-conservative theory was followed.

2. Certain public service commissions and many reputable accounting firms have promulgated different rules, including a rule that the unamortized discount and the premium on the retired issue, together with any discount and expense on the new issue, should be amortized over the life of the new issue. This rule is based on the theory (1) that there is not only a saving in interest charges over the life of the old issue, but also a benefit to the corporation in that generally the maturity date of the new issue is considerably later than that of the old issue; (2) that the refinancing is done for the purpose of obtaining both the lower rate of interest and the extension of the time of ultimate payment, and consequently that the entire period of the new issue should stand the total cost.

3. Another theory is that the unamortized discount and premium on retirement of the old issue should be amortized over the remaining life of the old issue and the discount and expense of the new issue over the life of the new issue. This procedure is advocated by many reputable accountants and was expressed by one of them in an address before the American Institute of Accountants at Boston, Massachusetts, on October 15, 1935: "This procedure would appear to be fundamentally sound as it limits the spread of the amortized discount and premium applicable to the refunded issue to those years which, as can be definitely determined in advance, will receive the benefit of the lower cost of money as a result of the refinancing."[6]

Proposed Treatment

The proper treatment of this problem is an important one to the accounting

(*Footnote 5 continued from page 410*)
Refunding Operations," *Journal of Accountancy*, October, 1935, pp. 252-259 at p. 255. For a discussion of the attitudes of the state commissions of Michigan, New York, Ohio and Wisconsin, see pp. 255-7. See also Dahl, *op. cit.*, at pp. 262-3.

[6] Andersen, Arthur, "Present-Day Problems Affecting the Presentation and Interpretation of Financial Statements," *Journal of Accountancy*, November, 1935, pp. 330-344 at p. 343.

profession. A careful study of the opinions received from various eminent accountants reveals that there is obviously room for definite and honest differences of opinion. Accounting methods prescribed for public utilities are of necessity more rigid than those followed in non-regulated industry, as it is necessary at all times to consider the equal rights both of the utility and the ratepayer. This is especially true under a scientific and long-range plan of regulation which has as its primary function the protection of such equal rights. With this in mind a procedure is presented below which embraces accounting methods that may be subject to criticism by some accountants in non-regulated industry, but is believed to be the most desirable for regulated industries, since its primary function and purpose are to set forth a procedure which takes into consideration the rights of the utility as well as the ratepayer.

A. The balance remaining in the unamortized discount account should not be charged off in one year to Earned Surplus, but should be amortized over the remaining life of the old bond issue. This statement is predicated on the proposition that the only connecting link between "fair return" and "fair value" is the capital structure, even though it has been practically ignored in the past. Apparently most commissions have followed the line of least resistance, basing an undifferentiated return on an undifferentiated rate-base, but it is fundamental that, if utility enterprises are converted from a speculative to an operating basis, their investments must take on a greater stability. In order to obtain this objective it is believed to be necessary, as well as logical and fair, to determine the rate of return in accordance with the actual differentiated cost of money.

It is beyond the scope of this paper to discuss the many intricate phases of such an objective but it must be borne in mind that it would make little, if any, difference in the method used in disposing of the balance remaining in the unamortized discount account, if one were not interested in the proper capital structure and the actual cost of money. A review of the position taken by various regulatory commissions (both state and federal) discloses no uniform method of treating the problem, for the reason that little consideration is ever given to the proper capital structure wherein it is possible to determine scientifically the actual cost of money for a public utility. As stated in the preceding paragraph, the accounting treatment set forth in this paper is based upon consideration being given to these important factors.

It is obvious that, if no refunding of bonds were made, the balance remaining in the unamortized discount account would be amortized over the remaining life of the bond issue. Based upon the proposition advanced above, it is only logical that the ratepayer would be fair to the investor if he allowed the balance remaining in the unexpired discount account to be amortized over the remaining life of the old bond issue. If this balance were written off over the life of the new issue, it would result in the ratepayer enjoying a differential over the investor, since it would lower the annual charge to the Bond Discount Account, and as a result would lower the actual cost of money because the cost would be computed over a longer period of years.

B. Any premium expense incurred in calling in and retiring the old bond issue should be amortized over the life of the new bond issue. All other costs incurred in connection with retirement of old issues, such as interest obligations dur-

ing the interim between refunding and call dates, as well as all expenses of selling and underwriting the new bond issues, should also be amortized over the life of the new bond issue.[7] Many reputable accountants believe that the premium expense incurred in calling in the old bond issue, in order to issue new bonds at a lower rate of interest, should be amortized over the remaining life of the old bond issue. Although there is considerable merit in such a contention, it is believed that this expense should be included with all other costs of the new issue for the reason that the utility would benefit because the maturity date of the new issue would be considerably later than that of the old issue. Especially is this true if the utility is able to issue open-end mortgage bonds in place of old closed mortgage bonds. Therefore, one should contrast the advantages of the investor with those of the ratepayer. The investor enjoys not only a saving in interest charges but also receives benefits in that the utility extends the time of ultimate payment of the bonds. On the other hand, the ratepayer enjoys a benefit as a result of the lower cost of money which can be definitely determined in advance. Although it is impossible accurately to weigh these benefits against each other, it is believed that in most cases the advantages would lie with the investor. Therefore, the ratepayer should enjoy the additional benefit of amortizing the premium expense in calling in the old bonds over the life of the new bond issue instead of over the life of the old bond issue.

C. The amortization account of the two issues should be kept separate in the ledger and also should be shown separately in the balance sheet, and the amortized accounts charged off each year should be shown separately in the profit and loss statement. Keeping the two issues distinct and separate would promote clarity in auditing, financial analysis, and investment scrutiny.

D. Proper accounting treatment of the various kinds of bonds is often very complicated. Care should therefore be taken in the method of writing off any unamortized premium or discount on the bonds so retired. Different kinds of bonds require different treatments, such as:

(a) Non-serial bonds	Equal-installment method
(b) Non-serial bonds	Effective-rate method
(c) Serial bonds	Bonds-outstanding method
(d) Serial bonds	Effective-rate method
(e) Convertible bonds	Conversion method

E. If the effective interest rate on the new issue is found to be in excess of the effective rate on the obligations retired, it would operate as a discrimination against the ratepayer, in the long run. In order to clarify this statement let us consider that at the time of redemption the old bond issue still had 10 years to run before maturity and the new bonds were issued for a period of 20 years. Under the method set forth in the preceding paragraphs, the first 10 years would be charged with the balance remaining in the old unamortized discount account and also with part of the actual cost of the new issue. The remaining 10-year life of the new issue would be charged with its equitable proportion of the cost of only the new issue, which would include any costs incurred by having to pay a premium in order to call in and retire the old bonds. This is reasonable if it results in the cost of money being less for the first 10 years of the new issue than would have been the case if the old bond issue had been allowed to remain in force. This would be computed on the basis of the saving in interest charges

[7] For a rather thorough discussion of this point of view, see Freeman, *op. cit.*, pp. 256-8.

over and above the additional expenses for the first 10 years of the new issue. But, if it is found that, after taking into consideration the savings in interest expense, the actual cost of money for the first 10 years would be more than it would have been for the remaining life of the old bond issue (including the additional interest expense), it would not only be detrimental to the investors but would result in being unfair to the ratepayer.

Therefore, in the event such increase in effective interest were to result, it should be made mandatory that all additional expense, over and above the amount which would establish the same effective rate of interest during the first 10 years of the new issue as it was on the old issue, should be charged directly to some specific account such as "Loss on Redemption of Long-Term Debt." This amount would be left in this account until the remaining life of the old bond issue had expired and then be amortized over the remaining life of the new bond issue. Moreover, if such a case should arise, it should be carefully scrutinized before being sanctioned by any commission, since it shows that the new issue of bonds would result ultimately in a greater cost to both the utility and the ratepayer.

It is quite possible that there might be increased complications arising under the above proposed method, if the refunding issues were themselves refunded a few years hence. The practical difficulties which may present themselves should be no excuse for the illogical treatment of the present accounting procedure. For, if the fundamental principles were determined, one would not have to deviate from the proposed treatment of the problem. If such a case should arise, it would mean that three variables would have to be dealt with instead of the two as at present. Certainly, it is more logical to apply sound reasoning to present accounting practice and procedure, in the interests of fairness to both the investor and the ratepayer, than it is to simplify the result on the ground that it might sometime in the future present practical difficulties.

The Federal Power Commission in the final draft of its new system of accounts, as formally adopted on June 16, 1936 and scheduled to become effective on January 1, 1937, incorporated the following provisions:

"When the redemption of one issue or series of bonds or other long-term obligations is financed by another issue or series before the date of maturity of the first issue, any unamortized discount, expense, or premium on the first issue and any premium paid or discount earned on reacquirement shall be debited or credited as appropriate, to account 414, Miscellaneous Debits to Surplus, or account 401, Miscellaneous Credits to Surplus, provided, however, that if the utility desires to amortize any of the discount, expense, or premium associated with the issuance or redemption of the first issue over a period subsequent to the date of redemption, the permission of the Commission must be obtained." (Uniform System of Accounts prescribed for Public Utilities and Licenses, subject to the provisions of the Federal Power Act, p. 15, Section E.)

The Securities and Exchange Commission in its Uniform System of Accounts for public utility holding companies, as formally adopted on August 8, 1936 and scheduled to become effective on January 1, 1937, incorporated the following provision:

"When an issue of funded debt, or any part thereof, is refunded and at the date of refunding there is a balance of unamortized discount and expense relating thereto the amount of such balance together with any premium paid in retiring the debt shall be charged to earned surplus, or amortized in

accordance with such rules, regulations, or orders as the Commission may issue." (Uniform System of Accounts for Public Utility Holding Companies, Government Printing Office, 1936, p. 16.).

The accounting treatment as set forth in this paper is at variance with the first part of the above two provisions but, if utilities and commissions are persuaded of the soundness of the methods set forth herein, authorization to follow these methods is contained in the latter part of the above provisions. The primary aim and purpose of the writer have been to set forth a plan which considers the equal rights of both the utility and the ratepayer. The second aim and purpose have been to aid commissions when considering the latter part of each of the above provisions and also when considering the Proposed Uniform Classification of Accounts for Electric Utilities (Classes A-B), as prepared by the Committee on Statistics and Accounts of the National Association of Railroad and Utilities Commissioners (1936).

Effect of the Revenue Act of 1936

Consideration must be given to the statutory and income tax laws covering the questions which arise in refinancing and the opinions of the courts in their various decisions with respect thereto. In Regulations 86 covering the Income Tax Laws under the Revenue Act of 1934 (Article 22(a)-18) it is stated:

"If bonds which were issued at a discount are purchased by the corporation at a price in excess of the issue price plus any amount of discount already deducted, such excess is a deductible expense in the taxable year."

The Internal Revenue Department has questioned the right to such deductions where purchase or retirement of bonds was contemporaneous with a new issue of bonds. Several cases[8] involving this point have been decided by the Board of Tax Appeals and the lower courts, with the precedents seemingly against the Department in the Circuit Courts, until the decision by the United States Supreme Court on March 16, 1936 affirmed the decision of the Circuit Court of Appeals for the Second Circuit in *Great Western Power Company of California, Petitioner*, v. *Commissioner of Internal Revenue*, and reversed the Board of Tax Appeals in the same case.[9]

The Great Western Power Company of California (Petitioner) appealed to the Board of Tax Appeals when the Commissioner of Internal Revenue disallowed and determined a deficiency against the petitioner for deducting from gross income for the year 1924 unamortized discount, premiums, and expense paid and incurred in that year in connection with the retirement of certain bonds. The Board of Tax Appeals held the deduction proper[10] stating:

"A taxpayer is entitled to a deduction of an amount representing unamortized discount and other financing costs in the year of redemption and retirement of a bond issue before maturity, notwithstanding the fact that part of the bonds were redeemed for cash and part were exchanged for other bonds of a later issue."[11]

The Commissioner of Internal Revenue petitioned the Circuit Court of Appeals, Second Circuit, to review the decision of the Board of Tax Appeals, which was granted. It reversed the Board's decision in part.[12] The United States Supreme Court granted the writ of certiorari to resolve a conflict.[13]

[8] *East Ninth Euclid Co.*, 26 B.T.A. 32, 27 B.T.A. 1289; *Indiana Lamp Corp.*, 28 B.T.A. 491; *Great Western Power Co. of Cal.*, 30 B.T.A. 503, 79 Fed. (2d) 94 (1936); *San Joaquin Lt. & Power Corp. v. McLaughlin*, 65 Fed. (2d) 677, 12 A.F.T.R. 858.

[9] *Great Western Power Co. of Cal., supra* n. 8.

[10] 30 B.T.A. 503 (Apr. 26, 1934).

[11] Hon. Sternhagen of the Board of Tax Appeals dissented.

[12] 79 Fed. (2d) 94 (July 22, 1935).

[13] *San Joaquin Lt. & Power Corp. v. McLaughlin*, 65 Fed. (2d) 677 (June 19, 1933).

Mr. Justice Roberts delivered the opinion of the Court on March 16, 1936,[14] and after reviewing the case, said:

"Section 234(a) of the Revenue Act of June 2, 1924 (Chapter 234, 43 Stat. at L. 253, U.S.C.A. title 26, Paragraph 986), directs that in computing the net income of a corporation subject to the tax there shall be allowed as deductions ordinary and necessary expenses paid or incurred during the taxable year in carrying on the business, interest paid or accrued within the year on indebtedness, and losses sustained during the year not compensated by insurance or otherwise. The Treasury promulgated a regulation under the Revenue Act of 1918 covering treatment of discounts and premiums, which, with immaterial changes, has remained in force under all the revenue acts and appears in Art. 545 of Regulations 65 applicable to the Revenue Act of 1924.

"Although the article does not expressly cover the items in question other than discount and premiums paid at redemption, expense in connection with the issuance of the securities is deductible on the same theory as unamortized discount [cases cited]. It has accordingly been held that where an issue of bonds is retired for cash, whether the cash be obtained by the sale of a new issue or not, the items in question are deductible in the year of retirement." [Cases cited.]

"The question then is whether, upon an exchange of one obligation for another which is to be retired, the transaction is to be viewed as if the retirement were accomplished by the payment of cash. If the retired bonds had not been called, the expense items incurred in connection with their issuance would properly be amortized over the remainder of their life. Here the petitioner substituted a new obligation for the old. The remaining unamortized expenses of issue of the original bonds and the expense of the exchange are both expenses attributable to the issuance of the new bonds and should be treated as a part of the cost of obtaining the loan. They should, accordingly, be amortized annually throughout the term of the bonds delivered in exchange for those retired.

"The judgment of the Circuit Court of Appeals is affirmed."

[14] 80 Sup. Ct., Law Ed., Adv. Op., pp. 578-80.

Although this late decision undoubtedly controls the accounting for unamortized discount as far as income tax procedure is concerned, it is pertinent to consider the new Revenue Act of 1936 and the possibilities of a tax penalty on refundings made since May 1, 1936. It seems that the official attitude at present is that any refunding or extension of indebtedness creates a new contract. The new law exempts from the undistributed earnings tax all sinking-fund allocations required by contracts or indentures which existed prior to May 1, 1936, but it is possible that such exemption will not apply, however, if the indebtedness which existed prior to May 1 is refunded or extended after this date.

This is a vital issue since it may deter some corporate refundings in advance of maturities, for the assessment of additional taxes on sinking-fund reserves may offset any prospective saving in interest charges. It is quite possible that in some instances this factor, together with the lower interest charges, may more than offset the anticipated original savings. In this connection, it is to be regretted that in the final analysis a utility may have acted in good faith and yet be confronted with an additional burden which could not have been foreseen at the time it refunded the bond issue. In such an event it is believed that commissions would be justified in giving special consideration to this phase, for it would involve the propriety of whether it should be acknowledged as a legitimate operating expense item through the Federal Income Tax account or whether it should be considered when determining the actual cost of money. It is hoped that in the final analysis the equal rights of both the ratepayer and the investor will be preserved.

Urban Land Department

MORTON BODFISH, *Editor*

New Departures in Subdivision Control

IF THE real estate business has started on the upward swing of its cycle as certain indices seem to suggest[1] and as certain observers maintain,[2] it is not too soon to take steps which may help to keep this upswing from reaching the excesses which have characterized similar movements in the past. Particularly in need of remedy is the subdivision branch of the real estate business, with its very pronounced ups and downs and their serious consequences for individual purchasers, local governments, and the public generally. To be sure, this segment of the real estate cycle is one of the last to show the upward tendency. Nevertheless, remedial measures are much better considered and adopted now while memory of past errors is still fresh and prevention of future errors can be considered with due care and deliberation.

California has taken the lead with a new technique of subdivision control. Its Real Estate Act of June 15, 1935[3] is a thoroughgoing revision of the real estate license law in that State, together with very important additional provisions concerning subdivision control. New York has followed with an amendment[4] to its Real Property Law "prohibiting fraudulent practices in connection with the sale of subdivided lands," and New Jersey has had two bills for similar purposes under consideration.[5]

While the greater portion of the California law is devoted to revision of the real estate license system, the present discussion will be focussed on the subdivision control features of the statute. Because of its prior enactment, the California law will be the basis of the subsequent discussion and the New York statute and New Jersey bills will be compared with it.

Definitions. "Subdivisions" and "subdivided lands" are defined in the California statute as "land or lands divided or proposed to be divided for the purposes of sale or lease, whether immediate or future, into five or more lots or parcels" (§20j). The proposed New Jersey law would have been more lenient, since it embraced only subdivisions of 20 or more lots.[6] The New York statute, on the other hand, limits its regulatory authority to land disposed of *on the instalment plan.* In fact, subdivided lands or subdivisions are defined as "vacant land or lands sold or leased on the instalment plan or offered for sale or lease on such plan" (§337 (1)).[7] But it should be noted that no group of lots, however small, is exempted from regulation in New York if they are to be sold on instalment payments.

Registration of Subdivisions. The first step in the regulatory process in all three states is the requirement that all lands to be subdivided shall be registered with the proper authority in the state before they may be offered for sale. Such registration includes the filing of data with respect to the property, its owner, and the subdivider, but most important are the statements to

[1] Decreasing vacancies, increasing rents, decreasing foreclosures, increasing volume of construction, etc.

[2] Wenzlick, Roy, *The Coming Boom in Real Estate* (New York: Simon & Schuster, 1936).

[3] Laws 1935, Act 112.

[4] Laws 1936, c. 868.

[5] Assembly Bills 314 and 315. Both were presented in the 1936 session, but since this was written it has been learned that both bills failed to pass. Reference to them is retained in the article, however, because they represent current interest in this problem and because they are likely to come up for consideration again in the near future in this or similar form.

[6] No. 314, §1.

[7] The characteristics of an instalment sale are amortization of the purchase price through periodic payments with title to be delivered upon completion of payments (§337 (3)).

Also included in the definition of instalment plan is reference to "a consideration from the lessee in addition to the periodic payments as a condition precedent to the conveyance of title to the lessee." This inclusion arises out of a sales practice pursued in New York State. "Some subdividers [have] preferred to create the relationship of landlord and tenant rather than the relationship of buyer and seller, and having fixed a definite duration of the contemplated leasehold, it was found that the total rent paid was not equal to the sales price. They therefore provided that the 'consideration be deemed the amount between the actual purchase price and the total amount paid in rents'." (Letter to the writer from A. S. Wechsler, Deputy Chief, Division of Licenses, Department of State, New York, July 24, 1936).

be filed concerning the nature of the title which the subdivider holds,[8] the terms and conditions upon which he proposes to sell the lots, together with samples of the actual contracts to be used in such sale (§20a).[9] The New York statute is even more inclusive, requiring additional data about the subdivider and his business record and also a search of title, together with a certificate detailing any encumbrances upon the property and any defects in the title (§337-a).

Inspection of the Property. The Real Estate Commissioner in California may make an investigation of a proposed subdivision (whether located within or without the State) to be offered for sale in the State, such investigation to be made at the expense of the subdivider. In the event that such investigation is made, the Commissioner shall make public his report thereon (§§20 b, c, d, e).[10]

Ability to Give Valid Title. The requirement that the subdivider must be in a position to give valid title upon fulfillment of the conditions of his sales contracts is one of the most important in the various laws. If the subdivider holds the property under any lien, encumbrance, option, or contract, he may not sell lots unless there is a provision in that instrument which will enable him to give a clear title when the lot purchaser has met the terms of his agreement (§20h). What is more, verbal assurance of such ability on the part of the subdivider is not sufficient; he must file copies of the instruments containing such release clauses (*Ibid.*).[11]

The New York law is even stronger. If the lot purchaser has made all payments to a point where his unpaid balance equals the amount necessary to release the lot from under whatever encumbrance the subdivider holds it, then the remainder of his payments shall be kept separate and shall be earmarked for paying the balance necessary to release the land so that the subdivider may give good title. Similarly, if the subdivider has defaulted upon any of his obligations, any moneys received by him from lot purchasers thereafter shall be kept separate and put in trust to clear title for the lot purchaser (§338(4)).

Enforcement. Since all these measures are related to the real estate licensing system in these states, the primary weapon in the hands of the enforcing agency is the revocation of a license upon evidence of violation of these subdivision provisions. The procedure in such cases is the same as that prescribed for other offenses under the license law (§20 l).[12]

But the new measures do not stop there. All give the enforcing authority additional powers. If upon investigation of a subdivision the Real Estate Commissioner of California finds evidence of fraud, deceit, or misrepresentation to the prospective purchasers, he may prohibit the sale or lease of lots in that subdivision. Such an order, however, must be preceded by a hearing and is also subject to court review (§§20 e, f).[13] Furthermore, anyone guilty of fraudulent practices or anyone with guilty knowledge who assists in the distribution of fraudulent information is punishable by a $2,000 fine or two years in prison. New York does not specify the penalty involved for violation of this act but designates such violation a misdemeanor and punishable as such (§338 (5)). A further provision in the New York statute imposes a $1,000 fine or one year in prison or both upon any subdivider who represents "in any manner that the state, department of state, or any officer thereof has recommended or acquiesced in the recommendation of the purchase of any subdivided lands offered for sale or lease, in advertising or offering such subdivided lands for sale or lease . . . ." (§338 (8)). Furthermore, in New York, if the Department of State believes that the evidence against a subdivider for malpractice under this Act is sufficient, it may bring action to enjoin him "from continuing such fraudulent

[8] In California a "true statement" concerning the title to the property and its encumbrances is required and in New Jersey a "statement under oath" is required.

[9] The regulatory bodies in both California and New York are given authority to demand additional data.

[10] The New Jersey proposal would have provided specifically for inspection only of property located outside New Jersey but to be sold within the State (No. 314, §3). Whether authority to inspect property to be subdivided within the State is assumed is not clear from the proposed statute.

[11] The New Jersey proposal was less specific; it did not mention "option" or "land contract" holding by the subdivider as a cause of inability nor did it require filing of the instruments involved (No. 314, §5).

[12] New York Laws 1936, c. 868, § 338 (5) and New Jersey Assembly Bill No. 314, § 6.

[13] Court review was not specifically provided for in the proposed New Jersey law.

practices" or it may, if the evidence seems to warrant, bring action to enjoin him "from selling or offering for sale . . . in this state . . . any vacant land or lands" (§339-c).[14]

Conclusions. This type of regulation should constitute a net gain to the control of subdivision activity. By seeking to reduce the possibility of fraudulent practices it tends to raise the standards of the subdivision business and at the same time helps to protect the lot purchaser. Furthermore, it represents a new approach to the problem. It works through one of the institutions—notably the land contract—which has played so important a role in past subdivision history. Its most constructive accomplishment would seem to be the protection it seeks to afford through assuring the lot purchaser of a valid title to the property, if and when he fulfills his obligations under the contract. Control of this type, taken together with proposals of the FHA, in connection with its insured mortgages, to control lending operations on subdivided property, should greatly strengthen the regulation of this business in which the public has so large a stake.

The most crying need in subdivision control, however, is some method of regulating the quantity of subdivided lots. The type of legislation discussed here works toward that goal only indirectly. In so far as it places more obstacles in the path of subdividers it may deter some of them—but presumably only the weakest of them—from entering this field of activity. On the other hand, given all the conditions of a genuine real estate boom, with its promise of large and quick profits, it hardly seems sufficient protection to society merely to require that the subdivider guarantee that he can release title to each lot as it is paid for. Legislation of this sort is definitely a step in the right direction, but a very grave doubt still remains as to whether the step is big enough to protect us against what we have experienced before.

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[14] Also refusal to supply any requested information is considered evidence of fraudulent practice for which a temporary injunction may be automatically issued (§339-c).

Operating Expense Ratios in Building and Loan Associations

BUILDING and loan associations are one of the most important groups of institutions in the field of urban real estate financing. These mutual home financing associations have aggregate assets of approximately $6,000,000,000 and are currently lending $1,000,000,000 a year upon the security of urban real estate.

Despite the size of the building and loan industry, its age, and its distinction as the most successful form of semi-cooperative enterprise, little has been accomplished in the specific study and analysis of the operation of individual associations. Numerous general treatises and trade organization publications are available to the interested student of real estate finance but very little effort has been devoted to objective analysis of their operations, formulation of standards for managerial control, or study of the factors affecting their revenues or expenses. A comprehensive program of research in the functioning of these institutions would undoubtedly produce much useful material and worth while information.

A start in this field has been made with the completion of a specialized study of the expenses or costs of operation of a selected sample of building and loan associations. The original data on operating expenses were drawn from financial reports of individual associations which gave the expenses incurred per annum. For purposes of analysis the absolute figures on expenses were expressed as percentages of the assets and gross earnings of the institution from which they were drawn, making the study one of costs per unit or the operating expense *ratios* of building and loan associations.

Since one of the main purposes of the study was to formulate managerial standards, an effort was made to include in the sample only the better institutions in the country, this being accomplished with the aid of the executive officer of each of the eight Federal Home Loan Banks represented in the sample. A statistical approach of a practicable yet adequate refinement was employed to determine the appropriate averages and to evaluate the factors affect-

ing these operating ratios. The averages of the operating expense ratios of the total group are presented in Table I.

TABLE I. AVERAGE OPERATING EXPENSE RATIOS IN BUILDING AND LOAN ASSOCIATIONS*

Item	Assets	Gross Earnings†
Salary expense	.56	9.13
Office expense	.10	1.58
Furniture expense	.02	.26
Advertising expense	.02	.52
Other expense	.25	5.13
Total expense	1.04	16.88

* The process of selection reduced the sample employed in the study to 142 associations distributed throughout the country and ranging from $100,000 to $35,000,000 in size.
† The average ratio of gross earnings to assets was 6.06.

Total costs of operation averaged approximately 1% of the assets per annum and 17% of gross earnings. Salaries and wages, including legal expenses, require an annual outlay equal to approximately ½ of 1% of the assets and 9% of gross earnings. The expense of maintaining office quarters absorbs 1½% of gross earnings or an amount equal to 1/10 of 1% of the assets. Furniture and office equipment expense is quite small, while the purely nominal appropriations made by these associations for advertising and merchandising makes an impartial observer wonder at the progress they have made.

Appraisal of these averages and their use as standards necessitate the making of several qualifications. The most significant one arises from the extreme variability of the ratios even in this selected sample. However, such averages are the best standards that could be obtained, since further refinement was not justified by the data.

The study then turned to analysis of the factors affecting the determination of these expenses. The size of the institution, as measured by its assets, was found to have comparatively little effect upon the operating ratios. A limited tendency to a decline in the total expense ratio and the gross earnings ratio with an increase in size of the association was observed. This tendency toward large-scale economy was detected only in the salary item when total expenses were broken down into their component parts. Further test of the strength or validity of these regressions showed them to be quite nominal.

A geographical classification of the data proved more fruitful and a decided tendency toward lower ratios in the older, more financially developed sections of the country was found. In general, the Federal Home Loan Bank districts followed this order in ascending expense ratios: Boston, Chicago, Cincinnati, Indianapolis, Winston-Salem, Des Moines, Topeka, and Portland. The total expense ratio for the Boston or New England district, the lowest in the group, was found to be 63% of the nationwide average, while the Portland, Oregon or Northwest district averaged 175% of the normal figure. The measure of the strength or validity of this geographical factor indicated that it was considerably more important than the size factor in determining operating expenses.

A limited analysis was made of the variations of these operating expense ratios over a period of years. From this study the generalizations were drawn that operating expenses tended to vary with gross earnings as in other lines of business and that a downward trend from the beginning of the depression had reversed itself in 1934 from the low point in 1933. The absolute variation of these ratios with the cycle seemed to be minimized and much less than might be expected. This resulted from the stability of gross earnings of these associations during the depression, since they are obtained from conservative fixed investments.

Use of statistical techniques in establishing standards and providing indices for managerial control has greatly increased in the past decade or two. This study of operating expenses is an attempt to provide information of some value to the management of building and loan associations in their endeavor to decrease their costs of operation or increase their efficiency.

Data of the type developed have another use in a broader, academic sense as a basis for quantitative comparison with other institutions in the field. Although innumerable forces are involved in determination of the institutional structure of urban real estate financing, the cost of operation of the various competing agencies is undoubtedly one of the major factors. The low operating ratios of building and loan associations augur well for their continued importance in urban real estate financing.

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The Second Conservation Crusade

TO THOSE who are old enough to have lived through Theodore Roosevelt's Administration the present crusade for conservation has a familiar ring. Popular magazine writers seized the idea and ran scare heads on the monopoly of water, the looting of the forests, and the waste of gas, coal, iron, and oil. One writer predicted that anthracite would be gone in 50 years and bituminous coal in a century. "So at the end of a hundred years," he shrieked, "dear children, all the coal will be gone and there never will be any more coal in the United States."[1] Another publication solemnly suggested conserving wood by a more careful use of matches, lead pencils, and kindling wood. "We often use too large matches. A large size is used where a small one only is needed for an instant and three quarters of a match is thrown away."[2]

What has all the evangelism of the Theodore Roosevelt era accomplished? Zimmermann goes so far as to say: "It is difficult to find any tangible and far reaching effects of the enthusiasm for conservation which Roosevelt managed to arouse."[3] Why? Because the fundamentals of economics, the framework of our institutions, and the legal aspects of conservation were largely neglected or ignored and because the professional "wolf criers" had deadened the nerves of the public by their overemphasis and distortion of facts. The "dear children" soon discovered that their descendants would not have to freeze and that a timber famine would not occur within their lifetime.[4] After the people had become apathetic, the scientist, engineer, and savant had to carry on without much encouragement and even with hostility on the part of a blasé public. It is a bit irritating, therefore, to be told that "savants lead cloistered lives in their laboratories and studies while Theodore Roosevelt pleads the cause of reforestation and Franklin Roosevelt sounds the tocsin of soil erosion control."[5]

It seems as if we were in the midst of a second crusade for conservation, employing the same tactics which created public apathy and hostility 25 years ago. The article from which the quotation was taken is an example and others could be cited. Somewhat in the same class is *Rich Land, Poor Land* by Stuart Chase.[6] It is brilliantly written and illustrated and many dramatic phrases drive home his points. The emphasis has been placed on the relation of water to land, as it should be. Again and again the author comes back to fundamental relationships; in fact, condensation and rearrangement of the material might have avoided some repetition. With land and water as his central theme he treats of forests, grass lands, and the "Dust Bowl," the creatures of land and water, and of minerals. He makes a plea for planning with nature, uses the T.V.A. as an example, and relates how the work is being accomplished "with the consent of the governed." He ends with the suggestion to "save the continent" by putting 5,000,000 men to work at activities similar to the conservation activities of the C.C.C.

In spite of its good points one lays the book aside with the feeling that it could easily have been a more accurate book and less subject to the criticism of overstatement or "devil hunting." The maps, no doubt, were intended to be impressionistic, but even so they could have been made more accurate and yet pictorial. As they now stand they are very misleading. Oregon is credited with the "highest rainfall on record" (p. 14), whereas the precipitation map on p. 299 of the *Report* of the National Resources Board plainly shows that the State of Washington ranks first in this regard. Errors such as these have already been

[1] Henry M. Hyde, "The Fat Jack of the Coal Mines," *Technical World Magazine*, May, 1909, p. 362.

[2] "Conservation of National Resources," American Unitarian Association, Social Service Series, *Bulletin* 28.

[3] Erich W. Zimmermann, *World Resources and Industries*. (New York: Harper & Bros., 1933), p. 782.

[4] Zimmermann, *op. cit.*, p. 785.

[5] Morris Llewellyn Cooke, "An Engineer Looks at Rural America," 12 *Journal of Land & Public Utility Economics* 1-11 at 9 (February, 1936).

[6] Stuart Chase, *Rich Land, Poor Land* (New York: McGraw Hill Book Co., 1936), pp. x, 361, $2.50.

pointed out by other reviewers, as well as the dangers of broad, sweeping generalizations as to the fall of Rome, etc.[7] Similarly the statement in regard to speculation and monopoly, with the "hardy pioneer a mere dummy," is too sweeping to be the whole truth and nothing but the truth. Neither is anything to be gained by comparing the "power gentlemen" with the southern slave owners and asking "will it take a bloody war to free the power slaves?" (p. 165.) In fact, the "devil theory," i.e., that lumber barons, speculators, power monopolists, and pot hunters are responsible for the lack of conservation is inadequate. One need make no apologies for these individuals to believe that the cause lies deeper. If the slaughterers gained, so did the average citizen in getting cheap food, lumber, coal, "gas," and free hunting.

The crux of the conservation problem lies in the statement: "It would be better for all concerned to pay higher prices to begin with and lower prices to end with. Oil would last longer and the average price to the consumer would be less" (p. 194-5). Here is where the average citizen and not the resource owner is put on the spot. Will he be willing to pay higher prices *now* so that shadowy generations to come may have lower prices to "end with"?

[7] See *The New Republic*, September 23, 1936, p. 187; October 21, 1936, p. 313.

The conservationist of today has a far more difficult task than he had in 1910. At that time the expected increase in population threatened to produce a shortage of all natural resources. The people were inclined to believe the predictions of timber famines and future generations shivering for want of coal. But in 1936 we anticipate a stationary population within less than two decades and instead of shortages we are wrestling with surpluses and excess plant capacity. The attempt to meet these questions in Chapter IV is inadequate. This does not mean that there is less need for conservation today than in 1910, nor that books such as *Rich Land, Poor Land* and Paul B. Sears' *Deserts on the March* are not needed to arouse the "man on the street" to a sense of personal responsibility for conservation of natural resources. But why repeat the mistakes of the first crusade? Why persist in preaching fire and brimstone sermons to a generation that does not believe in hell? And the sermons must be accompanied by some good hard thinking on the economics, the political economy, and legal phases of conservation so that we will have the machinery by which enthusiasm can be converted into action.

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Planning and Political Geography

FOR many years geographers have studied the relationships existing between political divisions and environmental conditions. Research papers thus far presented in the field of political geography illustrate certain valuable techniques and constitute interesting surveys and interpretations of selected political problems in various parts of the world. Admitting that pure science is necessary, desirable, and entirely above any need for defense, still most political geography has been confined to the analysis of distant problems concerning which we can do no more than talk. Those who follow current trends are fully aware that various groups in the United States are now giving serious attention to questions of redistricting and relocation. It therefore appears to be an opportune time for geographers to capitalize their experience by cooperating with planning agencies in offering some tangible recommendations concerning the size, shape, boundaries, and administrative centers of governmental units. The purpose of this paper is to outline in broad strokes one example of practical political geography as applied to a current planning problem.

The County Problem

Adverse economic conditions and excessive costs of government are directing public attention toward critical analysis of our existing county system. Investigations conducted during the past two years by many state planning boards, for example, indicate that in every part of the nation numerous unreasonably small counties now cause expensive and unnecessary duplication of functions.[1] Agitation for county redistrict-

[1] A recent survey of the literature, including state planning board reports, shows that readjustment of

(Footnote 1 continued on page 423)

ing is assuming such proportions in California and elsewhere that interested parties already have proposed certain corrective measures. In no case, however, has definite action been taken by state planners or other governmental officials. This hesitancy to rush blindly into reform is commendable; centuries of bitter experience remind us that hasty and ill-advised changes can easily make bad matters worse.

Consideration of the county problem from the point of view of practical political geography leads to the formulation of six general guiding principles:

1. Counties or some corresponding administrative districts larger than cities and smaller than most states appear to be desirable and necessary features of the American scene.
2. Counties should be numerous enough for reasonable convenience as gauged by modern means of transportation and communication.
3. Counties should be few enough to allow the maximum economy in conducting local governmental functions.
4. Counties should constitute areas having a high degree of unity in natural environment and in human activity.
5. Counties should at least roughly correspond to regional or district trading units.
6. County seats should be easily accessible from all parts of the areas they are designed to serve.

California's Counties

California is used here as a demonstration area to illustrate the need for county reorganization, the danger of accepting casual suggestions for county consolidation, and some practical applications of political geography.

Taxpayers in California now are supporting 58 separate and distinct county units, ranging from 240 to 2,208,000 in population, and from 42 to 20,175 square miles in area (Fig. I—Map A). Only 14 of these counties are in the southern half of the State; the remaining 44 make a crazy-quilt pattern in the north. This pattern is largely a heritage from the days of the Argonauts when Southern California was a sparsely settled cattle region and Northern California was a relatively populous mining and agricultural area. In practically every case the boundaries of these counties are drawn with little or no regard for topography, climate, water resources, road pattern, population distribution, economic activity, or trading habits.

Recognizing the need for readjustment, certain chain newspapers in Los Angeles have been advocating a so-called "Five-County Plan" whereby California's 58 counties would be consolidated into five huge super-counties (Fig. I—Map B). This amazing plan is notable chiefly because of its magnificent disregard for elementary geographical principles. Even the great Sierra Nevada Mountains, recognized as the western boundary of Mono and Inyo Counties in the current illogical set-up, are entirely disregarded. Crossed by no railroad, all-year highway, or airline, this huge range functions as an almost complete barrier between the San Joaquin and Owens Valleys. Accordingly, some unfortunate citizens residing in what is now Mono County would be forced to travel about 1,000 miles to make a round trip from their homes to Fresno, their proposed new county seat. For a state larger than Italy and Austria combined it seems as ridiculous to consider having only five counties as it is to support the present 58.

Regardless of obvious and inherent weaknesses in the Five-County Plan, it is evident that any method for reducing the cost of government by county consolidation inevitably will perpetuate some of the present untenable county lines. Therefore, in spite of the difficulty occasioned by reassigning the assets and liabilities of split counties, existing county lines usually must be ignored if the optimum county arrangement is to be discovered.

A Geographical County Plan

California's muddled county problem challenges solution by the application of some principles of practical political geography. Geographic regions and sub-regions constitute the solid framework of any proposed geographical county plan, but usually certain modifications are necessary. For example, the Sierra Nevada Mountains are a well defined geographic region quite distinct from either adjoining valley. It would be patently absurd, however, to set up a

(*Footnote 1 continued from page 422*)

county lines is under active consideration in Arkansas, California, Illinois, Indiana, Kansas, New Jersey, Oklahoma, and Oregon.

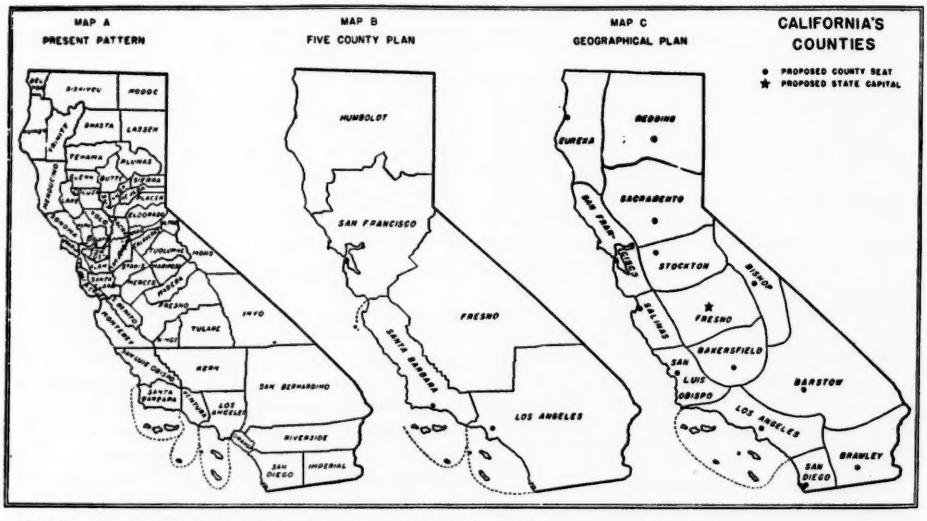
Sierra Nevada County in this virtually uninhabited wilderness.

From the point of view of practical political geography California needs fewer counties and more rational county boundaries. Reconnaissance survey of the State reveals 14 districts, each of which probably could function effectively as a county (Fig. I—Map C). These 14 embryo counties fall into three groups: (a) six coastal counties, (b) five counties centering in the San Joaquin-Sacramento Valley, and (c) three desert counties east of the mountains. In the following brief characterizations every proposed county is called by the name of its suggested county seat.[2]

The Coastal Counties. Six counties might be recognized in the populous and productive littoral which borders the western edge of California from the Pacific shoreline to the crest of the several coastal ranges. Chief among the six proposed coastal counties are Los Angeles County and San Francisco County. Each of these two important political subdivisions would center in one of California's two metropolitan areas, and would include closely associated communities of adjacent densely populated coastal districts. These two areas, though widely separated, have a certain similarity in that both differ from the rest of the State in their emphasis on trade, manufacturing, and ocean commerce. The counties here delimited give a unity to both metropolitan areas that now is lacking, and allow space for more expansion of urban forms than can be ex-

[2] The proposals made in this paper, although based on eight years of interest in the geography of California, should be considered tentative. No attempt is made to explain completely or defend every detail of each proposed county; to do so would require many hundred pages. Those readers, however, who lack sufficient background in this field to evaluate critically the recommendations here presented will find assistance in Smith, J. Russell, *North America* (New York: Harcourt, Brace and Co., 1925), Chaps. xxvii, xxviii, xxx, xxxi, xxxii, and xxxiv; Colby, Charles C., *Source Book for the Economic Geography of North America* (Chicago: University of Chicago Press, 1926), 3rd ed., Chap. xii, Parts 5-11; Miller, George J., and Parkins, Almon E., *Geography of North America* (New York: John Wiley and Sons, 1934), 2nd ed., Chaps. xv-xix; and Niklason, C. R., *Commercial Survey of the Pacific Southwest* (Washington: Government Printing Office, 1930), U. S. Dept. of Commerce, Domestic Commerce Series No. 37.

FIGURE I. THREE OUTLINE MAPS OF CALIFORNIA, SHOWING (A) THE PRESENT COUNTY PATTERN; (B) THE FIVE-COUNTY CONSOLIDATION PROGRAM; AND (C) A GEOGRAPHICAL COUNTY PLAN*



*Each proposed county is named after its recommended county seat (indicated by a black circle). See also Rand McNally's *Commercial Atlas* (65th ed.), pp. 76–90.

pected within this century.

San Diego County is designed to embrace that part of the Southern California coast which lies somewhat beyond the immediate influence of Los Angeles, but in close proximity to San Diego. There might be some argument for including this territory within the new Los Angeles County, for San Diego in many ways is a small edition of Los Angeles, without, however, a proportionate commercial and industrial development. Nevertheless, it must be remembered that San Diego now has a population of more than 150,000 and that it is farther from Los Angeles than is Portland from Boston or Richmond from Washington. In a similar way Eureka County takes in the lumbering and dairy part of the Northern California coast sufficiently removed from San Francisco to be more accessible to Eureka.

Two divisions are recognized in the central coast between Los Angeles and San Francisco Counties. New San Luis Obispo County is drawn to include the group of small agricultural valleys surrounding Lompoc, Santa Maria, San Luis Obispo, and Paso Robles. In addition to proximity and concern with similar water-supply problems, the people living in these valleys have a mutual interest in beans, sugar beets, flower seeds, almonds, peaches, and apricots. Salinas would be the county seat for a district comprising the Salinas Valley, the southern Monterey Bay area, San Benito Valley, and intervening hill country. Admittedly this area is similar to new San Luis Obispo County, but from the point of view of practical political geography probably sufficient reasons suggest two distinct political units. First of all is the powerful factor of distance. Then, from the land utilization point of view, we find that the Salinas region is concerned especially with dairying, the production of alfalfa, lettuce, and artichokes, and with the fishing and resort industries centering on Monterey Bay. Effective local government probably would require recognition of these fundamental differences.

The Valley Counties. California's great Central Valley is the most extensive and important farming region in that part of the United States lying west of the Rockies. This fertile plain extends north and south for a distance of about 450 miles, but its average width is only some 50 miles. As might be expected in such a long narrow agricultural area, a series of small cities have developed at irregular intervals. Each of these cities—Bakersfield, Fresno, Stockton, Sacramento, and Redding—has conspicuous local importance as the market and service center for nearby-by territory.

In spite of its undisputed excellence as a geographic region, the Central Valley is too big and too disjointed to make a satisfactory county. We also must provide for the eastern slope of the Coast Range and the western slope of the snowcapped Sierra Nevada, areas with small populations but of tremendous importance as watersheds to residents of the dry plains between them.

Everything considered it appears that there should be five counties centering in the Central Valley—three in the larger San Joaquin Valley, and two in the smaller Sacramento Valley. Bakersfield, Fresno, and Stockton Counties would occupy appropriate sections of the San Joaquin Valley, and reach from the crest of the Sierra Nevada on the east to the crest of the Coast Range on the west. Boundary lines are placed to coincide roughly with the spheres of influence of the chosen county seats, and to give political unity to districts having special local interests and problems. Bakersfield County would take in important cotton, citrus, dairy, and petroleum producing areas; Fresno County would be predominantly a grape growing region; Stockton County would be a general farming area with emphasis on dairy cattle and on grain, peach, and potato production.

Sacramento, largest city of the Central Valley, is the logical center for a county embracing the lower and middle parts of the Sacramento Valley and extending from the crest of the Coast Range on the west to the State line on the east. The populous valley part of this proposed county specializes in growing wheat, barley, rice, pears, and in sheep raising. Because the road pattern of northeastern California focuses on Redding, the largest town of that extensive but scantily populated district, Redding County might well include all territory north of Sacramento County and east of Eureka County.

The Desert Counties. The three remaining counties are east of the mountains in the desert part of California. Bishop County would consist of the Owens Valley and the Mono and Bridgeport Basins—areas isolated from the San Joaquin Valley by the

great Sierra Nevada mountain barrier. All of the vast Mohave Desert with its scattered mining centers, railroad towns, and irrigated agricultural land would be contained within Barstow County. Barstow is recommended as the county seat because this little city is the focal point of highway and railroad transportation for the entire desert. Death Valley is made a part of Barstow County because the best and most used roads enter this popular winter resort from the south. Brawley County gives political unity to the Imperial, Blythe, and Coachella Valleys with their common emphasis on irrigated commercial farming in an arid environment, and their mutual interest in the Colorado River.

Political Practicability

From the standpoint of practical politics this proposed geographical county plan seems to have considerable merit. Seven counties (Los Angeles, San Diego, San Luis Obispo, Bakersfield, Bishop, Brawley, and Barstow) occupy territory generally recognized as Southern California, and seven counties (San Francisco, Eureka, Salinas, Redding, Sacramento, Stockton, and Fresno) occupy territory generally recognized as Northern California. Any business conducted on a county basis, therefore, would be reasonably fair both to the north and to the south. This desirable condition presents a marked contrast to the existing situation under which the southern half of the State has 14 counties while the northern half has 44.

According to the new arrangement counties would be regions similar in environment and in land utilization. This grouping of like areas into independent minor political units should faciliate recognition and solution of many questions local to various parts of the State. It also should minimize injustices resulting from the existence of minority "forgotten districts" in our present hodge podge county pattern. Predominantly urban sections no longer would exercise direct control over rural territory having different interests and problems. People in the Mohave Desert part of Los Angeles County, for example, never can expect sympathetic consideration from citizens of the metropolis.

Any suggested reform can be expected to draw opposition from certain quarters. Some of the small northern counties now enjoying a disproportionate representation in the State Senate would object to having their influence reduced to a point commensurate with their population and area. Many residents of those cities which would cease to function as county seats also would prefer the status quo. Perhaps the most violent disapproval would be voiced by the hundreds of county officials whose offices would be abolished by any sweeping reduction in the number of counties. In the opinion of the writer, however, the county arrangement here outlined would commend itself to the California electorate because (a) the plan is a reasonable one based on sound principles of common sense, (b) taxpayers might hope to save a sum estimated in 1934 by Roland Vandegrift, then State Director of Finance, at from $25,000,000 to $50,000,000 a year, and (c) the 14 cities designated as county seats have within their municipal boundaries almost half the population of the entire State.

Conclusion

California is not peculiar because it suffers from a severe overdose of ill-conceived counties. Probably every state planning board might profitably sponsor county surveys conducted from the point of view of practical political geography. By this action they could adapt the technique and experience of a useful but little known discipline to formulate definite programs of county reorganization. These programs of efficiency and economy, unlike many "plans," would be capable of achievement directly and simply through local governmental action. The accomplishment of even one such major objective should go far toward establishing state planning boards as permanent, effective organizations.

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R E A Allotments and Loans

THE federal program of rural electrification[1] is beginning to assume substantial proportions, and in connection with its progress several facts are interesting to note.

Preference in the distribution of funds is given borrowers other than persons and corporations organized for profit. The loan contracts are between REA and the various private or cooperative agencies and public authorities and may be made for the entire estimated maximum cost of completing the proposed project. Loans to private organizations are for the most part secured by the general credit of the borrower and, in the case of non-profit associations, municipalities, and other agencies of the state, by the line itself. Labor must be drawn from the relief rolls wherever possible; sub-contracting is strictly regulated; hours of labor and conditions of employment are defined; and the pledging or assignment of part of the wage to the employer as the price of the job is prohibited.

Erection of the lines is being made by utility companies on "force account" or by contractors, subject to the approval of REA. "Force account" is defined to mean employment by the borrowing agency of persons working on the project and the construction of the project by the borrowing agency. The construction contract is between the borrower and the construction company. In many cases it has been noted that actual construction could be accomplished for much less than the amount represented in the loan contract.

The Northern Idaho Rural Electric Rehabilitation Association of Naples completed a 40-mile project at a total cost of construction, including all materials, labor, and overhead, of $41,244.65, or $1,031 per mile of line having a customer density of 6.2. The Southeastern Nebraska Public Power District awarded a construction contract, including meters and transformers, for 450 miles at $814.66 per mile of line having a customer density of 2.5. The Florida Power Corporation has received approval of its plans for a third section of 15.28 miles to serve about 45 customers at an estimated cost of $859 per mile, including meters, transformers, and services. However, published information on actual construction costs has so far been too inadequate to warrant even a limited comparison.

The total cost of the project for which funds are loaned by the United States is defined by the Administration to include "all overhead facilities for transmitting and distributing electric energy along the highways, including transformers, customers' meters and service lines from the highway to the customer, generally not over 150 ft. Necessary engineering plans, legal and other overhead expenses as may be approved by REA are a part of the above cost, but promotional expenses are not included." It is not always clear from the figures on actual construction costs what items of overhead, if any, are included, and whether or not meters and services are excluded. Table I shows the amount of loan, number of miles of proposed construction, and number of prospective customers by states.

The loan contract represents the second stage of progress of a particular application. The first stage consists in the allotment of funds. Allotment is usually made after a preliminary inspection and examination have found the proposed project feasible. Data on allotments showing the amount of funds earmarked, number of miles of proposed construction, and number of prospective customers by states are summarized in Table II. The loan contract is negotiated when the project has met the final engineering and legal tests set up by REA, and successful completion seems reasonably assured.

REA funds are also available to finance wiring installations on lines built with REA funds or by private utilities. Two loans of this type, one to Pioneer Rural Electric Cooperative, Inc. (Ohio) in the amount of $30,000 and to Meeker Cooperative Light & Power Assn. (Minn.) in the amount of $25,000 have been or are being negotiated.

[1] See Nicholson, Vincent D., "The Rural Electrification Act of 1936," 12 *Journal of Land & Public Utility Economics* 317-318 (August, 1936).

TABLE I. REA ALLOTMENTS APPROVED, AS OF OCTOBER 20, 1936*

State	Amount	Miles	Customers
Alabama	$ 65,400	66	270
Alaska	115,000	80	292
Arizona	145,000	124	470
California	700,000	497	1,491‡
Colorado	140,000	139	427
Delaware	230,000	215	646
Florida	48,500	60	241
Georgia	441,000	418	1,717
Idaho	119,000	104	445
Illinois	198,000	175	690
Indiana	1,942,100	2,010	7,673§
Iowa	197,500	223	561
Kansas	65,000	60	241
Kentucky	196,800	160	1,253
Maryland	35,000	30	150
Michigan	400,000	350	1,975
Minnesota	381,000†	365	1,027
Mississippi	70,600	60	270
Missouri	877,000	859	2,923
Montana	523,000	498	1,656
Nebraska	1,241,150	1,103	2,799
North Carolina	569,000	533	2,767
North Dakota	96,000	51	265
Ohio	440,000	444	1,535
Oklahoma	375,000	435	1,140
Pennsylvania	210,000	214	652
South Dakota	77,000	67	320
Tennessee	345,000	322	1,284
Texas	640,000	540	1,800
Virginia	330,000	322	1,119
Washington	13,000	13	61
Wisconsin	1,360,000	1,349	4,455
Wyoming	94,000	87	298
Total	$12,680,050	11,973	42,913

* From REA bulletins and releases.

† Includes $25,000 for farmstead wiring.

‡ This figure is based on an estimated average of three customers per mile of line.

§ Includes an estimate of three customers per mile of line for 355 miles.

Money for this purpose is loaned to the cooperative to be repaid over a period of five years with interest at 3% per year on the unpaid balances. These funds are reloaned to members of the cooperative under the terms of its contract with REA up to 80% of the cost of farmstead wiring. The cooperative's expenses are in turn met by another interest charge of 3% on the unpaid balance. The plan, by making wiring installations available on a group basis, is intended thus to reduce costs to the individual rural resident. Plans and specifications are prepared in accordance with standards and practices set up by REA and contracts awarded on the basis of competitive bidding. This is the same procedure as is followed for construction of rural distribution lines by cooperatives.

TABLE II. REA LOAN CONTRACTS EXECUTED, AS OF OCTOBER, 20, 1936*

State	Amount	Miles	Customers
Alabama	$ 170,000	164	842
Florida	164,500	185	575
Georgia	966,200†	917	5,475
Idaho	89,750	75	320
Illinois	1,201,500	1,145	4,150
Indiana	2,244,926	2,127	6,954
Iowa	2,400,100	2,368	7,382
Kentucky	71,700	39	291
Massachusetts	255,000	232	680
Minnesota	1,461,000	1,489	4,602
Mississippi	81,000	55	361
Missouri	565,000	545	1,813
Nebraska	1,441,000	1,322	3,352
North Carolina	645,250	587	3,356
Ohio	2,790,200‡	2,161	8,831
Oklahoma	70,000	81	315
Pennsylvania	400,000	375	1,433
South Carolina	648,328	501	2,578
Tennessee	504,258	251	1,547
Texas	488,000	350	1,366
Virginia	491,800	531	2,054
Wisconsin	2,094,600	2,737	5,500
Total	$19,244,112	18,237	63,777

* From REA bulletins and releases.

† In the case of Crisp County Farmers Cooperative Association, allotment was for $60,000 and loan contract for $50,000. The balance of $10,000 is still available.

‡ Includes $30,000 for farmstead wiring.

The combined figures, as shown in Tables I and II which are compiled from REA releases, present the total of funds which have been earmarked or loaned for building rural lines. Only a very small proportion of the number of miles for which funds have been loaned have as yet been energized. Approximately 5,400 miles of line are now under construction or energized. Although the REA was established in May, 1935, an organization had first to be created, and not until November 4, 1935 were the first loan contracts signed.

Not capable of measurement, however, is the impetus which the release of federal funds for building of lines at low costs to public bodies and associations gave to private corporations, but the upswing in rural extensions by private utilities may have been accelerated in part by the lively activity of an ambitious federal agency.

P. VAN DERAA
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City of Los Angeles versus Southern California Telephone Company

ONE of the major issues before the California Railroad Commission in this case, which was decided April 27, 1936, was that of the proper rate-making area. The City of Los Angeles, which originated the case by filing a complaint with the Commission, contended that the Los Angeles exchange was the proper unit, and the Company, that its entire operations should be considered. This issue was important because the Los Angeles exchange has relatively high earning power, and the outside exchanges as a group, low earnings. The Commission decided that the Los Angeles extended area, including the Los Angeles exchange and several suburban exchanges with certain service-interchange privileges, was the smallest unit for which it was practicable to determine earnings, and was the proper rate-making area. However, the Commission also held that consideration should be given to the "investment structure of the entire company and other factors so that reasonable over-all earnings will prevail." In its findings the Commission said:

"Under the rates herein prescribed the utility will earn a return on the fair value of the Los Angeles extended area (including the Los Angeles exchange) which considered by itself is higher than a reasonable return, and will earn a return on its entire investment as high or higher than capital in the vicinity can obtain in other investments comparable as to security and risk. . ."

The return allowed for the Los Angeles extended area was 6.8% and for the Company as a whole, about 6%.

In a concurring opinion Commissioner Carr stated that this consideration of the earnings of the Company as a whole did "not represent a matter of legal right of the utility but rather an equity in favor of the outside low earning exchanges."

The Commission was influenced in this decision by the Company's history. Prior to 1930 the Company served only the Los Angeles exchange and two small exchanges created out of the original Los Angeles exchange area. Two rate increases and one rate decrease had been granted since 1917, considering only this area. In 1930 the Southern California Telephone Company acquired all properties of Pacific Telephone & Telegraph Company in Southern California. This acquisition, which doubled the number of stations served, included most of the relatively unprofitable exchanges.

In considering the question of property value the Commission discussed many factors. The basis for the final undepreciated value found was not disclosed, but it is probable that the following adjustments were made in considering reproduction cost:

(1) Part or all of the increases in Western Electric prices on manufactured equipment in 1930 and subsequent years were probably disallowed;

(2) Theoretical cost of cutting and replacing pavement not historically cut or replaced was apparently excluded;

(3) Going concern value as an additive sum was not allowed.

The disallowance of the price increases by Western Electric Company, primarily applicable to central office and station equipment which it manufactures, is in line with similar action by other commissions throughout the country. According to data in the order, these increases totaled to 33⅓% between January 1, 1930 and 1935, while in the case of materials where other suppliers were available, prices as of January 1, 1935 were considerably lower than at January 1, 1930. This was true even though these latter materials were largely purchased through the Western Electric Company also.

The Company's estimate of reproduction cost, when adjusted as indicated above, was slightly less than the historical cost of the property. Therefore, unless the Commission's adjustments are challenged, there is no issue in this case as to which of the two

measures of value is proper to use in a rate case.

In regard to going value, the Commission found that a substantial item of value existed and stated that "in the findings to follow the fair value of the properties will include their value as a going and operating concern." Previous to this statement the Commission noted with approval the latest expressions of the Supreme Court "that so far as the cost of creating a going value is in the capital accounts or has been absorbed in the current cost of service it should not be allowed again as an additive sum in developing a property base."

Non-operating property and land held for future use were included in the rate-base by the Commission. It was evident to the Commission "that reasonable judgment was employed by the management and that it plans to make use of the properties in the future." These properties were of negligible amount.

The Commission discussed the questions of including disconnected stations left in place and unused station installations and drop wires in the rate-base, but its decision on these points is not evident from the order. The writer's inference was that these items were included in the value used as a rate-base.

In its treatment of accrued depreciation and depreciation expense in this case the California Commission ably furthers the principle that these factors should be determined consistently. The Company claimed annual depreciation expense on the straight-line basis, but estimated accrued depreciation on the basis of operating condition and appearance. A composite annual rate of 4% was claimed for expense, and total accrued depreciation was estimated at only 7%, although average age of the property was in excess of seven years. Accrued depreciation calculated on the same basis as the claimed expense allowance was 22%. In the case of central office equipment, annual expense was computed by the Company at 4.8%, and existing depreciation at 4.0%.

The Commission criticized the Company's basis of estimating accrued depreciation as not recognizing functional causes of depreciation, which the Company's witness had stated to be among the "most deadly influences affecting the life of a telephone plant." The deficiencies of the Company's methods were effectively illustrated by comparing its valuation of motor vehicles to the market prices of such vehicles. Active market quotations were available only for this class of property. "The city presented a study of the Company's claims regarding passenger vehicles, showing that the Company's reproduction cost new less observed depreciation was 40% higher than the full 'Blue Book' sales prices and 94% higher than the wholesale prices shown."

The Commission based its final determinations on the sinking-fund method. The following quotation expresses its views in this matter:

> "Because of the long use of the sinking-fund method in this state with satisfactory results, and because it more closely approximates reality than does the straight-line theory, it will be employed here as a test of earnings for the purpose of establishing rates, although it is clear that the same conclusions are reached by consideration of any of the three methods."

The similarity of final results reached under the various bases of determining depreciation, provided they are consistently applied to determine both expense and accrued depreciation, is emphasized by the Commission throughout. On the basis of straight-line depreciation the rate of return earned by the entire Company in the last five months of 1934 (on an annual basis) was 6.26%. Using observed depreciation claimed by the Company, together with its retirement experience as a basis for the expense allowance, earnings were 6.42%. Using the sinking-fund method, rate of return was 6.29%.

The straight-line method was condemned by the Commission as not being in accord with reality. "Under this basis the company has built up a reserve which at the end of 1934 amounted to nearly three times its estimate of the depreciation existing in the property." The Company's witness is quoted as saying: "The lives of property do not follow that theory." On the other hand, the sinking-fund method is praised because it "more closely approximates reality."

In spreading the rate reduction ordered to the different classes of service the Commission gave first consideration to charges for business service, particularly the minimum charges for individual business service. Both the City and the Company expressed opinions that reductions in the hand-set rate and in residence flat rates should be considered first. These opinions are in line

with the Bell system's fundamental rate-making principle that business rates should be as high as possible, and residence rates as low as possible, always keeping in mind the desired rate of return. The Commission's conclusion that reductions in Los Angeles' business rates were of first importance was apparently influenced by a comparison of rates in this City with those in the other larger cities of the country. This showed that charges for business service in Los Angeles, particularly for the small user, were above the average, while charges for residence service were below the average.

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Public Utility Financing in the Third Quarter of 1936

SECURITIES floated by public utility companies during the third quarter of 1936 totaled $314,326,635. This sum represents a drop of nearly 70% from the preceding quarter and a decline of slightly over 40% from the third quarter of 1935. That this third-quarter lull, which is not abnormal, does not necessarily presage a sustained slump in the volume of public utility financing is evidenced by the fact that, as of October 1, 1936, registration statements involving issues aggregating nearly a quarter billion dollars were on file with the Securities and Exchange Commission. Those imminent flotations, of course, included the $175,000,000 American Telephone and Telegraph Company debentures which were publicly offered on October 15.

Public utility financing in the third quarter consisted of 25 issues, of which 23 were long-term debt obligations and two were preferred stocks. Short-term obligations were entirely absent during the quarter. The 25 issues ranged in size from $472,635 to $38,000,000, with an average of $12,573,000 per issue and a median of $9,000,000. The average of $12,573,000 is materially below that of nearly $17,000,000 which prevailed both during the first half of 1936 and the year 1935.[1] During the period under review, 96.3% of the financing was for refunding purposes, which compares with 94.5% and 93.2% in the second and first quarters, respectively, of 1936.

Long-Term Debt Financing. The 23 long-term debt issues totaled $309,854,000, 98.6% of the total of all types. Four of these issues were sold privately and one issue bore serial maturities. The 18 remaining long-term debt issues are summarized in detail in Table I.

Although the volume of financing fell during the third quarter, it can hardly be said that quality also declined. With the exception of three issues, all comparatively small, the securities floated during the quarter were those of companies engaged predominantly in the electric and/or gas industries. Furthermore, many of these companies have for a long period ranked well up the list in credit rating. In view of these facts and the current level of interest rates on high grade utility bonds it is not surprising that many of the yields on the offerings listed in Table I are only 3.50% and less. In fact, none of the offering yields exceeds 4.77% and only five exceed 4%.

The high average quality of the issues listed in the accompanying table is readily shown by a comparison of the weighted average coupon-rate, yield, price, cost, etc., with the same measures of financing in the two preceding quarters of 1936. The comparative weighted averages for the three quarters are:

	1st Quarter	2nd Quarter	3rd Quarter
Coupon rate	3.70%	3.82%	3.57%
Offering price	101.09	100.69	102.13
Offering yield	3.64	3.78	3.46
Underwriters' commissions	2.25	2.26	2.18
Incidental expenses	0.58	0.91	0.84
Net proceeds	98.26	97.52	99.11
Cost	3.82	4.00	3.63

It may be noted from these data that the average cost of 3.63% in the third quarter is almost identical with the average offering yield in the first quarter. Broadly speaking,

[1] See "Public Utility Financing in 1935," 12 *Journal of Land & Public Utility Economics* 91-94 (February, 1936); "Public Utility Financing in the First Quarter of 1936," 12 *Ibid.* 208-210 (May, 1936); and "Public Utility Financing in the Second Quarter of 1936," 12 *Ibid.* 320-323 (August, 1936).

financing in the third quarter reversed the trend toward more general financing which had appeared during the second quarter.

Other Financing. The one serial issue, which was offered in July, consisted of $1,500,000 Sioux City Gas & Electric Company Serial Debentures, Series A, maturing July 1, 1937 to 1946, inclusive. The first five maturities carried a coupon rate of 3% and were offered at prices ranging downward by ¼ point from 101 for the one-year series to 100 for the five-year series. The last five maturities carried a 5% coupon rate and an identical set of offering prices. The yields thus ranged from 2% to 5%, with an average of 3.79%. Underwriters' commissions and incidental expenses averaged 2.00% and 1.04% respectively, leaving average net proceeds of 99.46% which cost 4.82%.

The four privately placed issues aggregated $70,519,000, or well over twice as much as in the second quarter when such offerings appeared to be on the wane. These four issues were: (1) $5,500,000 Southern Indiana Gas & Electric Company first mortgage 3.35% bonds placed at par in September; (2) $10,350,000 Queens Borough Gas & Electric Company refunding mortgage 4's sold at 104 in July to yield 3.75%; $16,669,000 Long Island Lighting Company first refunding mortgage 4's sold at 104¼ in July to yield 3.75%; and $38,000,000 Kansas City Power & Light Company first mortgage 3¾'s placed in September at an unrevealed price. This last named issue was the largest one brought out during the third quarter.

Stock issues accounted for only $4,472,635

TABLE I. SUMMARY AND ANALYSIS OF LONG-TERM DEBT ISSUES OFFERED PUBLICLY (EXCLUSIVE OF SERIAL MATURITIES), THIRD QUARTER, 1936

Company and Issue	Coupon Rate	Principal Amount	Maturity Date	Month of Offering	Offering Price*	Offering Yield	Underwriters' Commissions*	Proceeds to Company*	Estimated Incidental Expenses*	Net Proceeds*	Cost to Company†
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)
	%				%	%	%	%	%	%	%
Cincinnati Gas & Elec. Co. First Mtge.	3¼	$35,000,000	8-1-66	Aug.	102	3.15	2	100	0.607	99.393	3.28
Narragansett Elec. Co. First Mtge., Series A	3½	34,000,000	7-1-66	July	102.83	3.35	2.25	100.58	0.620	99.960	3.50
New York Edison Co., Inc. First Lien & Ref., Series E	3¼	30,000,000	4-1-66	July	102	3.15	2	100	1.100	98.900	3.31
Louisville Gas & Elec. Co. First & Ref. Mtge.	3½	28,000,000	9-1-66	Sept.	102¾	3.35	2.25	100.5	0.569	99.931	3.50
Detroit Edison Co. Gen. & Ref. Mtge., Series G	3½	20,000,000	9-1-66	Sept.	105	3.24	2	103	0.604	102.396	3.37
Gulf States Utilities Co. First Mtge. & Ref., Series C	4	17,300,000	10-1-66	Sept.	103	3.83	2.25	100.75	0.510‡	100.240	3.99
Indianapolis Water Co. First Mtge.	3½	13,827,000	7-1-66	July	100	3.50	2	98	1.350	96.650	3.69
Wis.-Mich. Power Co. First Mtge.	3¾	10,500,000	7-15-61	July	103	3.57	2	101	1.040	99.960	3.75
Arkansas-Louisiana Gas Co. First Mtge.	4	10,000,000	7-1-51	July	98	4.18	3	95	1.710	93.290	4.63
Sioux City Gas & Elec. Co. First Mtge.	4	9,000,000	7-1-66	July	98½	4.09	3	95.50	1.040‡	94.460	4.33
Bangor Hydro.-Elec. Co. First Mtge.	3¾	7,108,000	7-1-66	July	104⅜	3.50	2.25	102.375	0.877	101.498	3.67
Cent. Vt. Pub. Serv. Corp. First Mtge., Series B	3½	7,000,000	8-1-66	Aug.	101⅞	3.40	1.283	100.592	0.804	99.788	3.51
W. Va. Water Service Co. First Mtge.	4	5,600,000	4-1-61	July	100	4.00	2.50	97.50	1.071	96.429	4.23
Gulf States Utilities Co. 10-Year Debentures	4½	4,000,000	10-1-46	Sept.	102½	4.19	2	100.50	0.510‡	99.990	4.50
Commonwealth Tel. Co. First Mtge., Series A	4	2,750,000	9-1-66	Sept.	100	4.00	2.50	97.50	1.332	96.168	4.22
Alabama Gas Co. First Mtge.	4½	1,500,000	8-1-51	Sept.	98½	4.64	3.50	95.00	2.380	92.620	5.22
Copper District Power Co. First Mtge., Series A	4½	1,250,000	6-1-56	July	96½	4.77	3.50	93.00	2.000	91.000	5.23
Pub. Serv. Co. of N. Hamp. First Mtge., Series E	3½	1,000,000	8-1-61	Aug.	104⅛	3.26	0.753	103.372	1.305‡	102.067	3.38
Weighted Averages Totals§	3.57				102.13	3.46	2.18	99.95	0.84	99.11	3.63

* Expressed in percent of principal amount as shown in Column (C).
† Computed on a bond yield basis using net proceeds per column (K).
‡ Pro-rata share of total expenses on two issues offered by the same prospectus. Proration made on basis of principal amounts.
§ Totals, which represent summation of actual amounts for individual issues, are: Principal Amount, $237,835,000; Offering Price, $242,901,195; Underwriters' Commissions, $5,183,060; Proceeds to Company, $237,718,135; Estimated Incidental Expenses $1,991,026; Net Proceeds, $235,727,109.

of the financing during the period under review. The two issues which made up this total were: (1) 4,860 shares of Public Service Company of New Hampshire $5 no-par preferred stock offered at 97¼ in August to yield 5.14%, and (2) $4,000,000 (40,000 shares of $100 par value each) of Rochester Gas & Electric Corporation 5% preferred stock offered at 102 in September to yield 4.90%.

Index Numbers of Volume

The index numbers[2] of volume of public utility financing for the third quarter of 1936 are as follows:

Period*	Total Capital	New Capital	Refunding Capital
July	91.35	7.61	452.90
August	26.51	1.16	135.96
September	73.81	nil	392.52
3rd Quarter	63.89	2.92	327.13

*The bases for these index numbers are as follows: monthly average, 1926, equals 100 for the monthly series; quarterly average, 1926, equals 100 for the quarterly series; and the year's total for 1926 equals 100 for the annual series.

[2] For a description of the index and back figures through 1919 see "The Volume of Public Utility Financing, 1919-1935," 11 *Journal of Land & Public Utility Economics* 352-356 (November, 1935) and references cited in footnote 1, *supra*.

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The Geneseo Case and Public Utility Regulation in Illinois

MODERN regulation of public utilities in Illinois by a state commission with comprehensive powers over supervision of privately owned utilities began 22 years ago with the creation of the State Public Utilities Commission.[1] The present Public Utilities Act repealed the original act, organized the Illinois Commerce Commission to supersede the State Public Utilities Commission, and substantially reenacted the original act, although by successive amendment, principally within the past five years, the powers of the Commission to deal with the newer complex problems of regulation have been enlarged.[2]

At the same session of the General Assembly during which the original Public Utilities Act was enacted, cities under the Municipal Ownership Act were authorized to acquire, own, operate, and regulate their own public utilities which were specifically excepted by Section 10 of the Public Utilities Act.[3]

Prior to enactment of the Public Utilities Act, cities had the power or right to permit or to deny use of their streets to public utilities, and to regulate through the franchise device the business of the public utilities operating within city limits and not under state regulation where the utilities made special use of the streets and public ways.[4]

Whatever control the cities exercised prior to the Act over rates and services of privately owned public utilities operating within the cities has been definitely and consistently held by the Illinois Supreme Court to have been withdrawn in favor of the plenary control vested in the state commission.[5] By enactment of the Public Utilities Act, rates fixed by municipal ordinance may be altered by the state commission in the public interest,[6] as well as standards of service[7] for the operation of privately owned public utilities within cities.

Whether the power still remained in the cities of this State to force privately owned

[1] L.1913, p. 459, approved June 30, 1913, in force January 1, 1914.

[2] L.1921, p. 702, approved June 29, 1921, in force July 1, 1921.

[3] L.1913, p. 455, approved June 26, 1913, in force July 1, 1913. The title was amended in 1921 to include villages and incorporated towns (L.1921, p. 702).

[4] *Chicago Mun. Gas Light Co. v. Town of Lake*, 130 Ill. 42 (1889); *City of Quincy v. Bull et al.*, 106 Ill. 337 (1883). See also dissenting opinion of Justice Stone in *Chicago Motor Coach Co. v. City of Chicago*, 337 Ill. 200, 215 (1929).

[5] *City of Chicago v. O'Connell*, 278 Ill. 591 (1917); *Hite v. C. I. & W. R. R. Co.*, 284 Ill. 297 (1918); *Public Utilities Com. v. Quincy*, 290 Ill. 360 (1919); *Village of Atwood v. C. C. I. & W. R. R. Co.*, 316 Ill. 425 (1925); *Northern Trust Co. v. Chicago Railways Co.*, 318 Ill. 402 (1925); *Commerce Com. v. Omphghent Township*, 326 Ill. 65 (1927); *C. N. S. & M. R. R. Co. v. Chicago*, 331 Ill. 360 (1928); *Chicago Motor Coach Co. v. City of Chicago*, 337 Ill. 200 (1929).

[6] *Public Utilities Com. v. Quincy*, *supra*, n. 5.

[7] *City of Chicago v. O'Connell*, *supra*, n. 5.

utility companies to discontinue the furnishing of public service within the city by refusing to continue in effect the franchise consent under which the facilities for rendering public service were constructed and maintained in the city streets and public places remained undetermined until the very recent decision of the Illinois Supreme Court in *City of Geneseo* v. *Illinois Northern Utilities Co.*[8] The decision culminated a very spirited controversy between the City of Geneseo, Illinois and the Illinois Northern Utilities Company, which Company had for some 25 years owned and operated an electric generating and distribution system, furnishing electric service in the northwestern part of Illinois. Service was being furnished within the City by the Company as part of the company-wide system, the poles, wires, and equipment of the utility having been placed in the streets of the City by municipal consent. Since enactment of the original Public Utilities Act the Company has been under the supervision and regulation of the state commission.

In 1923 the Company was granted a franchise from the City to continue to furnish electric service within the City, which franchise expired by limitation on July 12, 1933. The City refused to renew the franchise, having availed itself of the provision of the Municipal Ownership Act under which the construction and operation of its own electric plant were proceeding, and ordered the Company to remove its poles, wires, and equipment from the streets and other public places. The Company refused to do so but instead sought, through the Illinois Commerce Commission, authority to put into effect a temporary rate in Geneseo to meet the competition of the municipal plant.

The Commission permitted the Company to file a temporary competitive rate on the theory that, so long as the Company continued to render service within the City, it was subject to the jurisdiction of the Commission.[9] The City in the meantime had filed a complaint in the Circuit Court of Henry County, Illinois against the Company for a mandatory injunction directing the Company to remove its poles, wires, and equipment from the streets and public places. The answer of the Company denying the power of the City to maintain the suit was stricken by the lower court and the mandatory injunction granted. On appeal to the Illinois Supreme Court by the Company, the decree of the circuit court striking the Company's answer was reversed.

The supreme court held in a five-to-two decision that the City was without power to bring the injunction suit to oust the Company operating under regulation of the Illinois Commerce Commission from maintaining its equipment within the City, even though it had no franchise from the City. The court points out that the basic principle has been established in this State that the Public Utilities Act has withdrawn from cities and vested in the Illinois Commerce Commission the powers which cities had previously exercised in relation to use of the streets and public places within the cities by privately owned public utilities. The power to determine whether such utilities shall conduct their utility business in a city rests with the Commission. To permit a city to exercise control over the instrumentalities of a public utility occupying city streets would give to the city in that respect concurrent jurisdiction with the Commission over a public utility, a result not contemplated by the Public Utilities Act.

The dissenting opinion of Chief Justice Stone, concurred in by Justice Farthing, is based upon the construction of Section 81 of Article VI of the Public Utilities Act, under which article certain home rule powers are conferred upon cities over rates and services of a privately owned public utility serving within the cities, providing such powers are approved by a majority of the legal voters of the cities voting at an election held for that purpose.

In the Chicago Motor Coach case the supreme court held that a city does not have the power to prohibit operation on its streets of motor busses as common carriers of passengers by a public utility which has obtained a certificate of public convenience and necessity from the Illinois Commerce Commission. The clear implication from the decision is that local control over privately owned public utilities operating within cities has been completely withdrawn.[10]

[8] 363 Ill. 89; opinion filed Feb. 14, 1936; rehearing denied April 24, 1936.

[9] *In the matter of the Illinois Northern Utilities Co.*, Com. Docket No. 22736, March 30, 1934.

[10] Except in the case of a street railroad, see Article 11, Section 4, Illinois Constitution of 1870; and local transportation companies in the City of Chicago, see Chicago Local Transportation Act, L. 1935, p. 283.

Comprehensive state-wide regulation of privately owned public utilities in Illinois has proved itself effective, intelligent, equitable, and free from local prejudice. With the growth of privately owned public utilities beyond city limits into large, state-wide systems, and the complex problems connected with present-day regulation, the State has been deemed by legislative policy and judicial construction to be the logical unit to provide genuine and sound utility regulation in the public interest, with adequate protection afforded to the cities to complain and be heard with respect to their local concerns before the State body.[11]

To cities which do not wish to resort entirely to the protection of the Commission and desire to retain a degree of control over privately owned utilities, there is still open under existing laws the adoption of the home rule powers of Article VI of the Public Utilities Act. Under Section 81 of this article the city, with respect to public utilities under its jurisdiction, is granted all powers and is expected to perform all duties imposed by the Public Utilities Act upon the Commission except as to the jurisdiction specifically retained by the Commission relating to uniform system of accounts to be kept and reports to be furnished by utility companies, supervision over issuance of securities, capitalization, intercorporate relations, the granting and transfer of operating rights, interstate rates, and certain powers relating to railroads and warehouses. Under Section 83 of the Act the assistance of the Commission may be made available to any city in working out its public utility problems upon formal application. Section 84 provides for review of city action by the Commission upon application of the public utility.

Any city in this State desiring full control over public utility rates and services entirely free from jurisdiction of the Commission may still go into the utility business with a free rein under the Municipal Ownership Act, subject only to judicial check.[12]

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[11] Public Utilities Act, § 64.

[12] *Springfield Gas Co. v. City of Springfield*, 292 Ill. 236 (1920).

Book Review Department

Urban Land

REAL ESTATE STATISTICS FOR ALLEGHENY COUNTY, PENNSYLVANIA. *Pittsburgh: Bureau of Business Research, University of Pittsburgh, 1936. pp. ix, 150. $2.00.*

Real estate and housing interests in Pittsburgh were quick to take advantage of the help and money offered by work-relief projects instigated by the Federal Government in 1934. Several valuable and comprehensive studies have been undertaken which have been supervised and published by the Bureau of Business Research of the University of Pittsburgh with the assistance of The Buhl Foundation. *Real Estate Statistics for Allegheny County, Pennsylvania* represents a basic part of an extensively planned program.

Data are given on building lots, voluntary conveyances, mortgages, foreclosures, residential building permits, and demolition permits. (An interesting addition would have been information on utilization of vacant lots after demolition of old structures.) The value of the tables, however, lies in the elaborate breakdown of these large groups which gives information never before available. For example, the number of mortgages are reported according to kinds of property, type of mortgagor and mortgagee, length of term, and amount. The amount of mortgages recorded is then classified according to kind of property and type of mortgagee. Figures on voluntary conveyances are also given according to several groupings. For the first time authentic figures are available on shifts in ownership, types of agencies lending money on real estate, and other pertinent questions.

The publication of data of this sort, while interesting and valuable at the time of presentation, soon becomes out of date and useless except for historical purposes. This study, however, has been planned with the definite intention of adding to it current data as fast as they are collected for comparative purposes. It should be an invaluable textbook for all agencies interested in real property in Allegheny County, as well as for state, federal, and other agencies closely concerned with the rate of land development, the extent of financial activity in real estate, and the amount of distress among real property owners. It should also serve as a guide book for other communities interested in collecting data on real property.

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Librarian, National Association of Real Estate Boards.

Land Resources

Dawson, C. A. GROUP SETTLEMENT: ETHNIC COMMUNITIES IN WESTERN CANADA. *Toronto: Macmillan Co., 1936. pp. xx, 395. $4.50.*

This is the seventh of a series of nine volumes under the general title, "Canadian Frontiers of Settlement," issued by the Canadian Pioneer Problems Committee and summarizing the results of their investigation of the pioneering processes in western Canada. This volume deals with group settlement on the frontier as opposed to individualistic settlement and attempts to analyze the progress made by typical groups such as the Doukhobors, the Mennonites, the Mormons, the German Catholics, and the French-Canadians. Dr. Dawson's interests are primarily sociological and he follows rather closely Professor R. E. Park's theories of the natural history of the sects. The volume is well written and contains much information which should be of value not only to the sociologist but to the general reader.

Group settlement, the author says, has been much in evidence in the prairie region and he attempts to show that the group method as contrasted with individual settlement makes for "greater residential stability." Stability of residence appears to be related to productive efficiency in group activities. Stability was especially useful because the abilities of the permanent settlers apparently were known and utilized by the group. The general conclusion based on "the types of towns, public buildings and roads, extent of land holdings, kind of farm buildings, agricultural methods, and agricultural products" is that "these colonies have been more than ordinarily successful." The exceptions noted were the "chronic fringes"

where soil and climatic conditions were unfavorable.

The five types of communities chosen range from the communistic Doukhobors to the individualistic French-Canadians whose "group" was simply that of nationality, language, and religious segregation. The author attempts to show that the greater the homogeneity and the more effective the group control the greater the likelihood of economic success, but the volume fails to indicate some of the important economic factors operating in the early development of these groups which contributed in a large measure to the economic success of the individual and the group. For example, the Mennonite families were able to obtain credit within their group at rates of interest as low as 3 or 3½% while the individual outsider was being charged 8 and 10 or even 20% by the commercial credit institutions.

No mention is made in the volume of the Huterian Brethren, a religious communistic group which has, up to the present, resisted the "invasion" which the author finds in other groups and there is no mention of the "Little Ukraines" or "Little Russias" which have been established and still persist in many sections of the Prairie Provinces.

The student of land economics will be interested in reading of the special privileges extended by the Canadian Government to such special groups as the Doukhobors, the Mennonites, and the Mormons. Land grants were made in blocks to those groups instead of to individuals and heads of families as was the custom in the Canadian land settlement policy. Present-day advocates of group and "bloc" settlement will find in this volume much suggestive material of practical value.

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Public Utilities

Bussing, Irvin. PUBLIC UTILITY REGULATION AND THE SO-CALLED SLIDING SCALE. *New York: Columbia University Press, 1936. pp. 174. $2.75.*

Public utility regulation is based on the need to protect consumers from the abuse of natural monopolies in the supply of certain everyday commodities and services. But the problem is not simply one of checking monopoly exploitations and discriminations; there is the secondary issue of promoting efficient management, such as the operation of free competition is supposed to insure under conditions of private enterprise. Dr. Bussing is concerned with this positive aspect of regulation, and presents a critical survey of methods employed for its accomplishment in this continent and Great Britain.

Since the sliding scale has been used in regulating the British gas industry for 60 years, the author commences by reviewing its operation there. The treatment suffers from the remoteness of the original. In the account of the statutory background of British regulation, there are several omissions and some inaccuracies in the secondary sources used. Dr. Bussing does not mention the Gas Regulation Act, 1920, and the important changes it made in the machinery of the sliding scale, and he does not point out the significance of the elaborate provisions in the basic system which he illustrates in weighting the scheme for the benefit of the small consumer. His comparison of prices charged by maximum-price and sliding-scale companies (pp. 32-3) seems unguarded, in view of the qualifications with which such results must be surrounded.

The sliding scale in the British electric power industry is more thoroughly surveyed. The writer shows how in many instances sheer stress of competition from potential substitutes has prevented the payment of dividends authorized under the sliding scale in the case of many power companies. He seems to conclude that the problem of providing an incentive to efficient management is therefore not actual, and the sliding scale could well be abandoned in favor of the old maximum price-and-dividend system, which did have the merit of simplicity.

Chapter IV, on the sliding scale in Toronto, is a mistake. The Toronto method of control as expounded by Dr. Bussing is in no sense a sliding-scale system.

The experiment with the sliding scale in Boston is adequately surveyed, though the writer should have noted the example here of the danger that, in striving to reduce current rates in order to secure authorization for higher dividends, a company under the sliding scale might fail to maintain its capital intact.

Dr. Bussing is happiest on the sliding scale in Washington, D. C. He reviews the development of public utility control in the District of Columbia, and the slow gestation

of the Washington Plan. He studies its operation in the last 12 years, and squarely puts the question, how far has the Plan been responsible for the fall in electric rates in the District which has occurred during the period of its operation. Here he disappoints. Dr. Bussing marshals an impressive array of facts to show how the development of Washington, D. C. as a market for electric power may have differed from that of the typical American city, but he makes little attempt to determine how far these external conditions have brought down electric rates in the District. The reader is left uncertain whether the famous Plan has influenced electric rates one jot or tittle.

The present writer would entirely agree with Dr. Bussing on the point he makes in Chapter X, that in any effective slide system the cost changes dependent on quality of management must be differentiated from cost changes external to management; but improvements in technology and changes in the load factor are not necessarily external factors. In specific cases they might largely result from high managerial efficiency within the particular company, and therefore be grounds for increased dividends. It is precisely this complexity which makes any sliding-scale scheme quasi-automatic only in a very limited sense. Skilled administrative control in regulation remains a necessity.

Dr. Bussing sub-titles the book, "a study of the sliding scale as a means of encouraging . . . efficiency in management." In his general conclusion he seems to sidetrack the central issue. One is left wondering whether he thinks that offering a reward really does deliver the goods, and finds small satisfaction in his mild approval of the sliding scale as a means for the "automatic adjustment of otherwise controversial issues."

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Public Finance

CONFLICTING TAXATION. *Chicago: American Legislators' Association and Council of State Governments, 1935. pp. 202.*

As a part of its program of promoting inter-governmental harmony the Interstate Assembly appointed the Interstate Commission on Conflicting Taxation to study the tax aspect of inter-governmental discord. The findings of this Commission have recently been published in the form of an elaborate progress report. The Commission has defined conflicting taxation as:

1. Discriminatory double taxation.
2. Lack of uniformity in the administrative techniques of states utilizing the same tax base.
3. Conflicts arising from attempts to localize sources of wealth and income within state lines and the resultant tax exemption accruing to interstate transactions.
4. Lack of perception on the part of concomitant jurisdictions that their cumulative levies against any particular tax base may result in such a high tax as to encourage evasion and diminish yields.
5. The excessive cost of maintaining a system of duplicate authorities for the administration of any particular tax.

These conditions have arisen largely as a result of the policy of fiscal individualism upon which the several governments of the United States have embarked. This separatist policy has been marked by a lack of correlation between the financial responsibilities of the different layers of government and the adequacy of available revenue sources. This suggests a long-range program of fundamental reorganization of governmental functions and revenue sources in order to eliminate the underlying cause of a major portion of present tax conflicts.

The progress report discusses four major remedies for this situation, viz.: centralization, adoption of a system of federal credits where federal and state governments use the same tax base, segregation of revenue sources, and intergovernmental comity. Nearly all these remedies are discernible in the specific recommendations made in the report.

The report contains considerable statistical analysis of the fiscal effects of overlapping and of the proposed remedies for this situation. Indeed somewhat greater emphasis is given to this than to the administrative and regulative aspects of the problems of conflicts. Although rather intensive treatment is accorded the taxation of income and inheritances, in general the report is an extensive survey of the whole problem. It has, however, made substantial progress in clearing the atmosphere of sources of irrelevant conflicts and in setting the problem in a fiscal perspective. It supplies a firm footing for supplementary research along such lines as it suggests, viz.: limited separation of revenue sources, principles of revenue balance, and governmental integration.

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